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### CONTENTS

	PAGE
I. TITLES ... ..	5
II. SUBJECT INDEX ... ..	77
General ... ..	77
Structure ... ..	78
Cytology ... ..	80
Physiology and Biochemistry ... ..	81
Development ... ..	85
Evolution, Genetics and Variation ... ..	86
Ecology ... ..	86
Economics ... ..	94
Geographical Distribution ... ..	99
Geological Distribution ... ..	100
III. SYSTEMATIC INDEX ... ..	105
1. Rhizopoda ... ..	105
2. Mastigophora ... ..	119
3. Sporozoa ... ..	124
4. Ciliophora ... ..	125

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## FOREWORD

Papers dealing with Protozoa entirely from a medical or veterinary standpoint (clinical, therapeutic, etc.) are omitted, but notices of these will be found in *Tropical Diseases Bulletin and Veterinary Bulletin*.

This list includes literature dealing with fossil Protozoa which has been unavoidably delayed in earlier volumes.

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VOL 97

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## II. SUBJECT INDEX

### GENERAL

**Text-books.**—Laboratory manual of parasitic protozoa, M. C. Meyer & L. R. Penner; Freshwater biology, H. Liebmann; Introduction to microfossils, D. J. Jones; The ocean floor, H. Pettersson; Zoological micropalaeontology, V. Pokorny (5).

**History.**—A review on modern micropalaeontology, J. Cuvillier (1); Recent foraminiferal research in the Benelux, J. H. van Voorthuysen (5); Cushman foundation for foraminiferal research, R. Todd (1); Recent literature on foraminifera, R. Todd (2), (3), (4), (5); Review of micropalaeontology, K. Stäesche; Polish micropalaeontological research work, W. Pozaryski (2); Recent foraminiferal research in Poland, F. Bieda (3); Recent foraminiferal research in Argentina, E. Boltovskoy (2); Recent foraminiferal research in Spain, G. Colom (1); Recent foraminiferal research in Australia, J. Crespin (3); Recent foraminiferal research in France, J. Cuvillier (2); Recent foraminiferal research in the United States—East Coast, R. C. Douglass; Recent foraminiferal research in United States—Mid-Continent Region, D. J. Echolls; Recent foraminiferal research in Austria, R. Grell; Recent foraminiferal research in Pakistan, A. F. M. M. Haque; Recent foraminiferal research in Germany, H. Hiltermann (3); Recent foraminiferal research in New Zealand, N. de B. Hornibrook (2); Recent



foraminiferal research in Libya, D. D. Hughes; Recent foraminiferal research in United States—East-Central Region, R. V. Kesling; Recent foraminiferal research in North Africa, J. Magné (3); Recent foraminiferal research in India, T. Nagappa (4); Foraminiferal research in Czechoslovakia, W. Pozaryski (1); Recent foraminiferal research in Israel, Z. Reiss (4); Recent foraminiferal research in Venezuela, B. J. Szelek; Development of parasitology in U.S.S.R., D. N. Sassuchin (3); Centenary of the discovery of human *Giardia* by Lamb (1824–1895), N. N. Plotnikov & D. N. Sassuchin; Discovery of the Romanovsky stain, C. A. Hoare (4); Malaria in ancient Greece, G. A. Livadas.

**Biography; Obituary.**—G. Bastianelli, G. Raffaelli; Congratulatory address to Johannes Buder, B. Schussnig; M. Caullery, D. Keilin; Contribution of D. Drake to study of malaria in America, P. F. Russell; Joaquin Frenguelli (1883–1958), E. Boltovskoy (3); Eugene Lacroix, J. Jung; Biography and bibliography of E. Penard, G. Deflandre; John B. Reeside jr. (1889–1958), L. G. Henbest (1); E. Reichenow, P. C. C. Garnham (4); A. Hase; Z. Kozar (3); Julius Zweibaum, obit. and bibliogr., Anon.

**Bibliography; Reviews.**—Bibliography of Micropaleontology in Germany, H. Hiltermann (4); Bibliography of late Paleozoic nonfusulinid foraminifera, F. Toomey; Bibliography of Australasian microfossils, J. Crespin (2); Foraminifera—general, H. Hiltermann (3); Protozoology, O. Jirumac et al.; Foraminifera from Ohio, A. La Roque & M. F. Marple; Bibliography of new genera, species and varieties of foraminifera in 1956, H. E. Thalmann (1); Neogene foraminifera from Germany, I. M. Van Der Vlerk & Ph. H. Kuenen; Use of avian embryos and tissue culture in the study of Protozoa, A. C. Pipkin; Current research on parasitic protozoa in Britain, J. Mahon (1); (2); Protozoa from far-eastern seas of U.S.S.R. (pp. 22–44), P. V. Ushakov etc.; References to marine protozoa, J. A. C. Nicol (3); Review of the survival of protozoa at low temperatures, H. Mühlhoff (2); General account of *Pelomyxa palustris*, M. Leiner; Review of present knowledge of *Toxoplasma*, D. N. Sassuchin (2). The classification of the Globigerinaceae, F. T. Banner & W. H. Blow.

**Taxonomy; Nomenclature.**—Taxonomy of foraminifera, W. Bielecka & E. Witwicka (1); Relation of classification of foraminifera to their mineralogy, P. D. Blackman & R. Todd; New names for foraminiferal homonyms IV, H. E. Thalmann (3); Foraminiferal homonyms, H. E. Thalmann (2); Subgeneric nomenclature among the Lepidocyclinae, T. F. Grimsdale & I. M. Van der Vlerk; Revision of the foraminiferal family Victoriellidae, M. F. Glassner & M. Wade (2); Classification of the Globigerinidae, J. Hofker (21); The classification of the Globigerinaceae, F. T. Banner & W. H. Blow; Systematics of the Lituolidae, W. Mayne (4); Status of *Nummulites reliatus*, F. E. Eames & W. J. Clarke & F. T. Banner; Systematics of *Nummulites*, A. Papp (3); Review of *Nonionionia cretacea*, J. Barrier & M. Neumann; Confusion between *Gromia oviformis* & *Allogromia ovoidea*, R. H. Hedley; *Saederleria*, a new genus of the family Allogromiidae, A. R. Loeblich & H. Tappan (2); *Grimaldinella* a new genus of the family Heterohelicidae, H. M. Bolli (1); Systematics of *Agathamina pusilla* Geinitz from the Permian of Poland, H. Wolanska; Systematics of *Textularia carinata*, A. G. Tauber;

Taxonomy of *Globotruncana* from the Upper Cretaceous of Poland, W. Pozaryski & E. Witwicka; Systematics of some Eocene foraminifera from Poland, F. Bieda (2); Calpionellids reviewed and recorded, J. Bolze, G. Colom & J. Sigal; On the status of *Theocampe* Haackel, B. H. Burma (2); Recent review of fossil Dinoflagellata, A. Eisenack (6); Problems of classification in the Sporozoa, G. H. Ball.

**Technique.**—Techniques for isolating Thecamoebians, L. Bonnet & T. Thomas; Food colouring for staining microfossils, R. L. Artus & J. C. Artus; Photography of microfossils, H. B. Whittington; Preparation of foraminifera, E. Witwicka et al.; Distribution of fossil foraminifera, G. H. Scott; Foraminifera techniques from Czechoslovakia, F. Prantl (2); Techniques applied to foraminifera, G. Göke (1); Techniques applied to recent radiolaria, G. Göke (3); Techniques as applied to radiolaria, G. Göke (4); Techniques applied to foraminifera, R. Morikawa (1); Concentrating small organisms for sectioning, Z. M. Arnold; Rapid sorting of foraminifera in plankton samples, A. W. H. Bé (1); Preparation techniques for acid insoluble microfossils, J. W. Funkhauser & W. R. Evitt; Maceration techniques with regard to foraminifera, Z. Kirchner & J. Bajer; Mounting microfossils for photography, S. S. Kornicker; Disintegration with regard to foraminifera, H. Kufferath; A simplified method of grinding foraminifera, A. McGugan; Foraminifera in thin-section, R. M. Nyiró (2); Fluoritization in micropaleontology, H. Osmolaka; Photography in relation to foraminifera, G. Aprile; Stereophotomicrography of fossils, E. P. Lehmann; X-ray absorption techniques in statistical study of foraminifera, K. Hooper; Inoculation of screw-cap tubes, J. M. Burke & J. J. Marchisotto; New technique of reflex microscopy, A. Westphal; Temporary stain for intestinal protozoa, M. P. Barretto & H. Zago Filho; Mollvaines buffer solution for use with Romanovsky stains, G. Lubinsky; Staining protozoa in histological sections, W. Schulemann & H. Warmbach; Techniques for storing blood films and staining malarial parasites in stored films, P. G. Shute & M. Maryon (2); Autoradiographic techniques applied to protozoa, C. Chapman-Andersen (1); Isolation of organisms from soil, moss and water, L. Deolitoire (3); Examination of amoebae by polarized light, R. D. Allen (1); Mass culture of *Amoeba*, T. L. Griffin (2); Assay of sea-water B<sub>12</sub> by *Euglena gracilis*, K. W. Daisley; Separating trypanosomes in blood, R. G. Yaeger; Use of fluorescence microscopy for the study of oocysts, L. R. Davis & W. N. Smith; Preparation of viable free plasmodia, I. W. Sherman & R. W. Hull (3); Preparation of cell-free *Toxoplasma*, Y. Tsunenatsu; Preparation of ciliates, J. P. Canto R.; Feeding radioactive bacteria to *Spirostomum*, H. E. Finley (1); Demonstration of food vacuoles in *Colpidium*, W. Schüller; Methods of extraction of Chitinozoa, L. R. Wilson.

## STRUCTURE

## MORPHOLOGY

**General Works.**—Fossil protozoans, V. Pokorný (5).

**Rhizopoda.**—Production of binucleate *Amoeba proteus*, R. C. Rustad (2); *Amoeba proteus* (popular account), H. Langer; Structure of *Naegleria gruberi*, S. L. Chang (1); (2); Costa Rican strain of *Entamoeba moshkovskii*, A. Ruiz (2); Morphology of *Dimorpha*

*floridanis* n. sp., E. C. Bovee (10); Morphology of foraminifera, W. Bielecka & E. Witwicka (1); Coiling in *Globigerina pachyderma*, D. B. Ericson; Coiling in foraminifera, R. Dehm; Calcite and aragonite in foraminiferal tests, R. Todd & P. Blackman; Foraminiferal wall-structure, P. D. Blackman & R. Todd; Morphology of *Patellina corrugata*, K. G. Grell; Morphology of *Allogromia laticollaris*, T. L. Jahn & R. A. Renaldi; Yabeina from the Japanese Permian, H. Igo (3); The initial stages of *Omphalocyclus macroporus*, J. Hofker (8); Morphology of *Orbignyina*, J. Hofker (2); Morphology of *Fabiana cassis* (Oppenheim), S. Hanzawa (2); Structure and Morphology of the genus *Sphaeroidinella*, W. H. Blow; Morphology of *Nonionina cretacea*, J. Barrier & M. Neumann; Morphology of *Lituola grandis*, J. H. Ziegler; The shell wall of *Agathammina pusilla* Geinitz from the Permian of Poland, H. Wolanska; Abnormal growth in *Bukimina echinata* d'Orbigny, G. Tavani (2); Morphology of *Textularia carinata*, A. G. Tauber; The wall-structure of *Cibicides*, *Planulina*, *Gyrogoninoides* & *Globorotalites*, Z. Reiss (3); The morphology of *Iberina* & *Spirocyclus*, W. Mayne (3); Morphology of the genera *Alveolophragmium* & *Reticulophragmium*, W. Mayne (1); Structure of *Nummulites millecaput*, S. Lefebvre; Morphology of the Discoeyclinidae, T. Kecskemeti (2); Morphology of the Asterigerinids, J. Hofker (20); Morphology of rotaliid foraminifera, J. Hofker (4); Morphology of *Nummulites*, A. Papp (3); Morphology of the Lituolidae, W. Mayne (4); Morphology of Upper Palaeozoic, foraminifera, L. G. Henbest (2); Morphology of some Permian foraminifera from Japan, S. Honjo; Morphology of Miocene foraminifera from Poland, A. Sulinski; Morphology of Tertiary foraminifera from Czechoslovakia, I. S. Sulimanov; Morphology of recent foraminifera from Japan, K. Asano (1); Morphology of Radiolaria, G. Coke (2); Structure of radiolarians, A. Hollande & M. Cachou-Enjume (1); Structure of nucleoles in Radiolaria, A. Hollande & M. J. Cachou-Enjume (2); Structure of Radiolaria, A. Hollande & M. Cachou-Enjume (2); Cellular differentiation in Mycetozoa, K. B. Raper.

**Mastigophora.**—Structure of *Coccolithus pelagicus*, M. Parke & I. Adams; Structure of *Chrysochromulina*, M. Parke, I. Manton & B. Clarke; Structure of *Noctiluca*, R. Drews; Structure of *Kofoidinium velloides*, R. Fensau; Colony formation in *Gonium pectorale*, L. B. Graves & W. J. Kostir; Structure and development of *Chlamydomonas cingulata*, W. H. Vek; Structure of *Retortamonas boae* sp. n. and *R. dobelli*, J. Kulda; Structure of *Critidia flexonema* sp. n. and *Leptomonas collosoma* sp. n. from insects, F. G. Wallace etc.; Morphology of *Leishmania* from *leishmaniasis diffusa*, J. Convit, etc.; Structure of *Herpetomonas ludwigi* comb. n., K. Vickerman (2); The study of trypanosomes by reflex microscopy, A. Westphal; Structure of *Trypanosoma mukasai* and *Dactylosoma mariae*, J. R. Baker (1); Structure of *Trypanosoma helogalei* sp. n., M. S. Grewal; Morphology of the *Trypanosoma congolense* complex, D. G. Godfrey; Structure of *Trypanosoma birabeni* sp. n., M. E. Jorg; Morphology of *Trichomonas suis*, T. rohindra sp. n. and *T. butteyrui* sp. n. from pigs, C. P. Hibler etc.; *Trichomonas muris* var. *meriones* from jird, S. M. Pak (1); Structure of *Hypotrichomonas acosta* gen. n., J. J. Lee; Morphology of *Protoopalina caneri*, K. M. Sukhanova (3); Morphology of fossil Dinoflagellata, A. Eisenack (6).

**Sporozoa.**—Structure of *Gregarina stigmata* sp. n. and *Pileocephalus glyptotactii* sp. n., G. A. Stein (1); Morphology of *Colepismatophila burti* sp. n., C. buckleyi sp. n. and *Lepismatophila orientalis* sp. n. from Ceylonese silverfish, H. Cruz; Morphology of gregarines, *Monocystella* from planarians, P. de Puytorac & J. Grain; Description of *Mecistophora legeri* gen. n., sp. n. from centipede, P. N. Ganapati & C. C. Narasimhamurti (1); Structure of new gregarine from millepede, P. N. Ganapati & C. C. Narasimhamurti (3); Morphology of gregarines from terrestrial arthropods, J. Theodorides (1); Morphology of coccidia from cattle, deer and camels, H. Prasad (2); Coccidia from squalids, S. K. Svanbaev (4); Description of new coccidia from a meadow mouse, *Eimeria wenrichi* sp. n. *Isospora mcdowelli* sp. n. and *Caryospora microti* sp. n., L. H. Saxe, N. D. Levine & V. Ivens; Structure of *Eimeria myocastori* sp. n. and *E. nutriae* sp. n., H. Prasad (4); Morphology of *Eimeria rufusi* sp. n. from kangaroo, H. Prasad (1); Morphology of *Eimeria neosciuri* sp. n., H. Prasad (3); J. M. Webster; Morphology of *Eimeria delicata* sp. n., *E. roundabushi* sp. n. and *Tyzzeria peromysci* sp. n. from deer, N. D. Levine & V. Ivens; Description of *Eimeria megaresidua* and *E. longaspora* sp. n. from newts, J. H. Jr. Barrow & J. B. Hoy; Structure of *Eimeria egypti* sp. n., *E. sylvatica* sp. n., *E. ericetomys* sp. n. and *Isospora egypti* sp. n., H. Prasad (5); Structure of *Eimeria vison* and *Isospora laidlawi* from mink, H. S. McTaggart; Structure of *Isospora* from cattle, N. D. Levine & R. N. Mohan; Structure of *Grassella microcosmi* gen. n., sp. n., O. Tuzet & R. Ormières; Morphology of new species of *Caryospora* from snakes, R. S. Bray (2); Structure of *Adalea hyalospora* sp. n., C. C. Narasimhamurti; Structure of *Eucoccidium ophryotrochae* sp. n., K. G. Grell (1); Morphology of haemogregarines in snakes, R. W. Hull & J. H. Canin; Morphology of *Haemogregarina aurora* sp. n., D. L. Lehmann (1); Structure of *Haemogregarina rubrimarensis* sp. n., *Dactylosoma lethrinorum* sp. n. and *Babesiosoma rubrimarensis* sp. n., D. C. Saunders; Structure of *Cyrtosporozoon tauroragii* sp. n., H. Martin & D. W. Brocklesby; Structure of *Babesia leporina* sp. n., B. Baldelli; Structure of *Piroplasma meles* sp. n., A. M. Krivkova; Morphology of *Haemoproteus canachites* sp. n., A. M. Fallis & G. F. Bennett; New species of *Haemamoeba* from chameleons, G. Pringle; Description of *Polychromophilus congolensis* sp. n., H. E. Krampitz & F. Anciaux de Faveaux; Sexual development of *Plasmodium berghei*, M. Yoeli & H. Most; Morphology of exoerythrocytic stages of *Plasmodium gallinaceum* and *P. fallax*, C. G. Huff, etc.; New subspecies of *Plasmodium cynomolgi* based on differences in pre-erythrocytic schizogony, P. C. C. Garnham (2); Morphology of *Plasmodium minasense* and *P. vastator* sp. n. from Malayan lizards, M. Laird (3); Description of *Plasmodium anomaluri* sp. n. from flying squirrel, G. Pringle; Structure of *Plasmodium matutinum*, A. Corradetti, I. Neri & M. Scanga; Description of *Ceratomyxa tenuispora* sp. n., Z. Kabata (2); Structure of *Hoferellus schulmani* sp. n., M. N. Golikova (2); Structure of *Plistophora* sp., H. M. Thomson & W. Smirnov; Description of *Plistophora operophtherae* sp. n. and *Nosema operophtherae* sp. n. from winter moth, E. U. Canning; Description of *Nosema cerasivoranae* sp. n. from caterpillar, H. M. Thomson; Structure of *Nosema tritoni* sp. n., J. Weiser; Morphology of *Nosema lepiduri* sp. n., J. Varna (3); Structure of *Stempellia weiseri* sp. n., V. Silharý; Structure of *Nephridiophaga xenoboli* sp. n., P. N.

Zanapati & C. C. Narasimhamurti (2); Structure of *Pirhemocytus eremiasii*, G. Blanc & L. Ascione.

**Ciliata.**—Structure of *Chlamydomonas opedarius*, M. Kaneda (1), (3); Structure of *Breslana* and Colpodidae generally, J. D. Stout; Redescription of *Balantidium simile*, D. H. Wenrich; Structure and development of chonotrichs, Y. Guileher; Structure of *Homalozoon vermiculare*, W. F. Dillen; Encystation in Suctorida, K. Kormos (1); Cave suctorium, *Spelacophyra troglodactylidis*, J. Matjašič; Skeletal fibres of astomates (ultra-structure), P. de Puytorac (1); Structure of Radiophryinae, P. de Puytorac (2); Structure of *Cyclidium glaucoma*, J. Berger & J. C. Thompson; Structure of *Frontonia leucas*, E. B. Small & R. J. Profant (1); Structure of *Tetrahymena chironomus* sp. n., J. O. Corliss (1); Structure and morphogenesis of *Tetrahymena patula*, N. E. Williams (1); Structure of *Tetrahymena limacis* in culture, D. A. Windsor; Morphological anomalies in *Paramecium*, E. C. Bovee (1); Structure of *Hysteroecinetia eiseniae* and *Ptychostomum campelomae*, E. N. Kozloff; Structure of *Condylostoma tardum*, E. Fauré-Fremiet (3); Structure of *Epistylis caldwelli* n. sp., M. Laird (4); Functions of stalk in *Vorticella*, G. N. Gassovsky; Description of *Condylostoma tenuis*, E. Fauré-Fremiet (4); Structure of *Folliculina boltoni*, J. M. Hamilton; *Spirostomum ambiguum*, M. Deckart (2); Morphogenesis in *Stentor*, G. Uhlig; Structure of *Thoracodinium vorax*, B. Latteur; Structure of *Diplodinium moucheti* sp. n., C. Noirot-Timothee (2); Structure of *Euplotes*, M. Tuffrau.

**Protista Incertae Sedis.**—Structure of *Anaplasma marginale*, M. Ristic (1); Characters of *Anaplasma* in northern limit of its distribution (USSR), P. S. Ivanova; Structure of *Eperythrozoon parvum*, J. Seamer.

## CYTOLOGY

**General.**—Problems in the study of cytology of protozoa, V. Y. Aleksandrov & G. I. Poljansky; Cytology of *Acanthamoeba*, S. Mookerjee & B. Hazra; Fine structure of *Hartmannella*, K. Deutsch & M. M. Swann; Structure of *Hyalodiscus*, K. E. Wohlfarth-Bottermann (3); Cytology of *Patellina corrugata*, K. G. Grell; Fine structure of *Actinosphaerium*, E. Anderson & H. W. Beams (1); Fine structure of *Acanthocystis*, J. B. Petersen & J. B. Hansen; Fine structure of *Euglena*, A. Frey-Wyssling, K. Mühlethaler & G. de Haller; Division of *Hypotrichomonas acosta* gen. n., J. J. Lee; Structure of *Trichomonas vaginalis* as seen in thin sections, S. Inoki, K. Nakanishi & T. Nakabayashi; Electron microscopy of *Lophomonas striata*, H. W. Beams, etc; Cytology of *Protoopalina*, K. M. Sukhanova; Cytochemistry of amphibian *Balantidium*, K. M. Sukhanova (2); Distribution of polysaccharides, phosphatase and nucleic acids in *Balantidium coli*, E. Ichinose; Fine structure of *Stentor*, J. T. Randall & S. F. Jackson; Cytology of various stages of gregarines from dragonfly larvae, G. A. Stein (2); Cytology of *Eimeria magna*, E. M. Cheissin; Electron microscope studies of sporozoites of *Plasmodium gallinaceum*, P. C. C. Garnham, R. G. Bird & J. R. Baker (1), (2); Electron microscopy of exoerythrocytic stages of *Plasmodium gallinaceum* in tissue culture, H. Meyer & M. de Oliveira Musacchio; Study of developing oocysts of *Plasmodium cathemerium*, D. Duncan, etc.; Electron microscopy of *Babesia rodhaini*, M. A. Rudzinska & W. Trager; Electron microscopy of *Sarcocystis*

*miescheriana*, J. Ludvik; The multicellular nature of *Sphaeromyxa sabrazesi*, P. P. Grassé; Structure of cell free *Anaplasma*, M. Ristic (2).

**Nucleus, nuclear division.**—Chromosomes and chromosome number in protozoa, G. I. Poljansky; Nuclear division in urethane treated amoebae, S. Mookerjee & M. G. Alamelu; E. M. study of mitosis in *Amoeba*, L. E. Roth, S. W. Obetz & E. W. Daniels; Electron microscopy of mitosis in *Hartmannella*, K. Deutsch; Structure of nuclear membrane of *Entamoeba blattae*, H. W. Beams, etc.; Nucleocytoplasmic ratio in *Euglena*, J. A. Gross; Chromosomes in *Nassula ornata*, I. B. Raikov (3); Macronucleus of *Chlamydomonas pedarius*, M. Kaneda (2); Nuclear reorganization in *Trachelocerca*, I. B. Raikov (1); Fate of nuclear fragments in *Tetrahymena*, O. H. Scherbaum & A. L. Louderback; HS cultures of *Tetrahymena pyriformis* found to be micronucleate are designated HSM, C. Wells (2); Chromatin extrusion in *Tetrahymena limacis*, M. P. Dysart; Effect of colchicine and colcemide on meganucleus of *Tetrahymena limacis*, M. P. Dysart & J. O. Corliss; Chromosomes in macronucleus of *Paramecium*, V. Schwartz; Macronucleus of *Paramecium caudatum*, H. Sato & M. Saito; Nucleolar cycle in *Paramecium caudatum*, E. Vivier (2); Nuclei of *Frontonia*, R. V. Devi; Nuclei of *Blepharisma*, P. B. Padmavathi (1); Nuclear division in *Holosticha*, R. Torch.

**Cytoplasm, cytoplasmic division.**—Consistency of amoeba cytoplasm, R. D. Allen (2); Electron micrographs of pinocytosis channels in *Amoeba*, C. Chapman-Anderson & J. R. Nilsson; Crystals of *Amoeba*, J. L. Griffin (1); Crystals of *Amoeba* and *Chaos*, J. L. Griffin (3); Mitochondria of *Acanthamoeba*, K. Vickerman (1); Fine structure of an amoeba (*Hyalodiscus*), K. E. Wohlfarth-Bottermann (2); Virus-like particles seen in cytoplasm of *Entamoeba histolytica*, J. H. Miller & J. C. Swartzwelder (1), (2); Electron microscope study of *Entamoeba invadens*, V. Zaman & D. C. Barker; Occurrence of lipids in Sporozoa, B. Dasgupta (1); Polysaccharides in Sporozoa, B. Dasgupta (2); Occurrence of plasmatomy in the tissue phase of some mammalian species of *Plasmodium*, R. S. Bray (1); Cytoplasmic structure of exoerythrocytic forms of *Plasmodium gallinaceum*, H. Meyer & M. de O. Musacchio; Phagotrophy in *Plasmodium falciparum* and *P. gonderi*, M. A. Rudzinska, R. S. Bray & W. Trager; Fine structure of *Dileptus anser*, J. N. Dumont; Division and morphogenesis of *Chlamydomonas pedarius*, M. Kaneda (3); Electron microscopy of contractile vacuole in Astomatida, P. de Puytorac (4); Stomatogenesis and division in *Frontonia leucas*, E. B. Small & R. J. Profant (2); Morphogenesis and multiplication of kinetosomes in *Glaucoma*, J. Frankel (1); Contact area of conjugating *Tetrahymena*, A. M. Elliott & J. W. Tremor; Fine structure of nephridial system in *Paramecium*, L. Schneider (3); Fine structure of nephridioplasm in *Paramecium*, L. Schneider (1); Kappa-like particles in *Paramecium*, T. M. Sonneborn, J. A. Mueller & M. V. Schneller; Nature of kappa in *Paramecium*, R. V. Dippell (2); Nature of mate-killer particles in *Paramecium*, G. H. Beale & A. Jurand; Fine structure of kappa, L. D. Hamilton & M. E. Gettner; R. V. Dippell (1); Contractile elements of *Ophryotrocha versatilis*, E. Fauré-Fremiet & C. Rouiller; Partition of paragycoen at division of *Stentor*, V. Tartar (1).

**Membranes.**—Theca of *Corythion*, L. Decloitre (3); The undulating membrane of *Trichomonas lacertae*,

L. Joye  
mecium

Orga  
Ehret;  
Amoeb  
Euglen  
Euglen  
E. K. E  
J. A. G  
of Eugl  
J. J. W  
H. T.  
Format  
& E. C  
Tririch  
Anders  
hyperm  
Grimst  
Seaman  
Electro  
S. Yam  
lastoma  
ciliatur  
Galiano  
L. H. B

Cysts  
& B. F  
minuta  
lepiduri  
nychia

Other  
in Tryp  
Kinetop  
Kinetop  
culture,  
Trypan  
Ray &  
helicia  
lacertae  
L. R. C  
tricles  
Cielesan  
gregarin

I  
Genes  
J. Gell  
Metazo  
M. A. V  
Trypan  
diun,  
physiol  
Transfo  
Fulton

Metab  
of proto  
synchro  
nous div  
division  
toleranc  
require  
protozo  
amoeba  
Anders  
P. W. I  
pinocyt  
Pinocyt  
Vor

L. Joyon; Cell membrane at conjugation in *Paramecium*, L. Schneider (2).

**Organelles.**—Organisation of organelles, C. F. Ehret; Fine structure of contractile vacuole in *Amoeba*, G. D. Pappas & P. W. Brandt; Plastids in *Euglena*, J. A. Gross & M. Villaire (1); Fine structure of *Euglena* chloroplasts, C. L. Greenblatt, R. A. Olson & E. K. Engel; Chloroplasts and culture age in *Euglena*, J. A. Gross & M. Villaire (2); Chloroplast and stigma of *Euglena*: microspectrophotometry, G. K. Strother & J. J. Wolken; Chloroplast development in *Euglena*, H. T. Epstein, E. B. de la Tour & J. A. Schiff; Formation of chloroplasts in *Euglena*, G. Brawerman & E. Chargaff (1-4); Studies of blepharoplast of *Trichomonas* with the electron microscope, E. Anderson & H. W. Beams (2); Fine structure of hypermastigote flagellum, I. R. Gibbons & A. V. Grimstone; Properties of isolated kinetosomes, G. R. Seaman; Fine structure of trichocysts, A. Yusa (2); Electron microscopy of *Tetrahymena*, M. Suhama & S. Yamataka (1, 2); Electron microscopy of *Condylastoma*, R. Yagui & Y. Shigemaka (1-4); Infrastructure of *Cyclopothium edentatum*, D. Fernández-Galiano; Buccal organelles of Ophryoscolecidae, L. H. Bretschneider.

**Cysts, spores.**—Cyst of *Acanthamoeba*, S. Mookerjee & B. Hazra; En- and exocyst in *Plagiopyxys minuta*, L. Bonnet (2); Spore cytology of *Nosema lepiduri*, J. Vavra (1); Structure of encysted *Stylochyria histrio*, K. Hashimoto.

**Other internal structures.**—Kinetoplast structure in Trypanosomidae, T. B. Clark & F. G. Wallace; Kinetoplast of *Leishmania tropica*, C. K. Pyne (2); Kinetoplast structure in *Trypanosoma cruzi* in tissue culture, H. Meyer & L. T. Queiroga; Akinetoplastic *Trypanosoma evansi* produced by Prothidium, H. N. Ray & M. N. Malhotra; Basal apparatus of *Cryptobia helicie* C. K. Pyne (1); The axostyle of *Trichomonas lacertae*, L. Joyon; Centriole structure in *Trichonympha* L. R. Cleveland (2); Structure and function of centrioles of *Trichonympha* from termites, L. R. Cleveland (1); Argentophile fibres in monocyctid gregarines, P. de Puytorac (5).

## PHYSIOLOGY AND BIOCHEMISTRY

**General.**—Influence of Protozoa on plant growth, J. Gellért; Biology of ciliates, comparison with Metazoa, M. F. Canella (1); (2); Asexual reproduction, M. A. Vorontsova & L. D. Liosner; Biochemistry of *Trypanosoma*, R. H. Knight; Physiology of *Plasmodium*, W. Trager; Structural development and physiological changes in *Tetrahymena*, G. G. Holz; Transformation of trypanosomes by DNA, J. D. Fulton (3).

**Metabolism, growth, nutrition.**—Respiratory rates of protozoa, J. N. R. Grainger; Metabolic control of synchronous division, O. H. Scherbaum (1); Synchronous division in protozoa, T. W. James; Synchronous division O. H. Scherbaum (2); Growth and salt tolerance of some protozoa, F. R. Evans; Thiamine requirement of some marine and supra-littoral protozoa, M. R. Droop; Pinocytosis studies on amoeba with autoradiographic technique, C. Chapman Andersen (1); Solute adsorption and pinocytosis, P. W. Brandt & G. D. Pappas; Protein uptake in pinocytosis, J. M. Marshall & V. T. Nachmias; Pinocytosis of ferritin, V. T. Nachmias & J. M.

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Fate of acetate in *Euglena*, W. F. Danforth; acetate and ethanol oxidation by *Euglena*, B. W. Wilson & W. F. Danforth; pH and growth of *Euglena*, B. W. Wilson et al.; RNA and photosynthetic apparatus in *Euglena*, G. Brawerman & E. Chargaff, (1); (2); Nitrite reduction by *Euglena* H. Huxnige & K. Satoh. Synthesis of  $\beta$ -carotene in *Euglena*, W. J. Steele & S. Gurin; Protoplasmic movement of *Allogromia laticollaris*, T. L. Jahn & R. A. Rinaldi; Serum replaced by cream in cultivation of *Histomonas*, E. Lesser (1); Nutrition of *Hypotrichomonas acosta*, J. J. Lee & S. Pierce; Steroid requirements of *Trichomonas*. P. G. Lund & M. S. Shorb; Growth in vitro of *Trichomonas* from nasal cavity of swine, B. W. Buttrey; Growth in vitro of pig *Trichomonas* at various pH, D. Palmquist & B. W. Buttrey; The influence of hypophysectomy and administration of hormones on the infectivity of rats to *Trichomonas vaginalis* and *Paracercobodo hominis*, E. Aron etc.; Fixation of CO<sub>2</sub> by *Trichomonas vaginalis*, R. Wellerson, G. E. Doscher & A. B. Kupferberg; Review of carbohydrate metabolism of *Trichomonas vaginalis*, A. B. Kupferberg; Amino acid pool of *Trichomonas gallinae*, P. A. Swenson; Free amino acids in *Trichomonas foetus*, A. E. Johnson; Aerobic metabolism of *Critidia fasciculata*, F. R. Hunter; Krebs cycle in haemoflagellates, R. Zeledón (3); Effect of carbohydrates and related substances on respiration of blood flagellates, R. Zeledón (2); Respiration of haemoflagellates R. Zeledón (1); Effect of inhibitors on respiration of trypanosomid flagellates, R. Zeledón (4); Anaerobic glucose metabolism by *Leishmania donovani*, A. N. Chatterjee & J. J. Ghosh; Uptake of radiiodium and radiophosphorus by *Trypanosoma equiperdum*, P. F. Mulvey Jr.; Distribution of DNA in *Trypanosoma evansi*, J. R. Baker (3); Inhibition of protein and nucleic acid synthesis in *Trypanosoma levisi* by ablazin, W. H. Taliaferro & T. Pizzi; Variation of respiration of *Trypanosoma cruzi* with culture age and substrate concentration, L. G. Warren; Inhibition of DNA in *Trypanosoma mega* by urea, M. Steinert & G. Steinert; Constitution of pigment and proteins of



*Plasmodium lophurae*, I. W. Sherman & R. W. Hull (2); Effect of *Plasmodium berghei* on mouse-liver mitochondria, M. V. Riley & T. Deegan; Separation of *Plasmodium berghei* from its red cell for use in metabolism experiments, I. B. R. Bowman, P. T. Grant & W. O. Kermack; Growth requirements of *Plasmodium hexamerium*, L. Nydegger & R. D. Manwell; Respiration of *Toxoplasma*, J. D. Fulton & D. F. Spooner; Properties of isolated kinetosomes, G. R. Seaman; Effect of inorganic depletion on ciliates, H. Bick (2); Hydroxyapatite in *Spirostomum*, F. G. E. Pautard; Inhibition of division in *Tetrahymena*, L. Rasmussen & E. Zeuthen; Growth and respiration in *Tetrahymena*, A. Lovlie & E. Zeuthen; Sulphydryls in *Tetrahymena*, O. H. Scherbaum & A. L. Lunderback & A. Brown; A. K. Katoh; Growth factors for *Tetrahymena*, H. S. Ducoff & M. William; Serine synthesis in *Tetrahymena*, V. C. Dewey & G. W. Kidder (1); (2); Metabolism and culture age in *Tetrahymena*, R. W. Hull & J. E. Morrissey; RNA metabolism in *Tetrahymena*, M. Alfert & K. Nirmat; Synthesis of protein and NA in *Tetrahymena*, D. M. Prescott & K. Bors; DNA, RNA and protein synthesis in *Tetrahymena*, D. M. Prescott (3); Growth rate of *Tetrahymena*, D. M. Prescott (1); Nutrition and pH in *Tetrahymena pyriformis*, M. S. Huddleston etc.; Nutrition and cell volume in *Tetrahymena pyriformis*, M. S. Huddleston etc.; Nutrition, population and longevity in *Tetrahymena pyriformis*, M. S. Huddleston etc.; DNA synthesis and chromatid extrusion in *Tetrahymena pyriformis*, M. P. Dysart; DNA synthesis in nuclei of *Tetrahymena pyriformis*, B. B. McDonald; Effect of kinetin on multiplication in *Paramecium*, M. A. McManus & K. Sullivan; A fatty acid requirement of *Paramecium*, C. A. Miller and W. H. Johnson; Respiratory metabolism of *Paramecium*, G. van Gremberg; Dry weight and UV absorption of macronuclei of *Paramecium*, R. F. Kimball, L. Vogt-Köhne & T. O. Caspersson; Effect of lecithin on killer in *Paramecium*, H. M. Butzel, L. H. Brown & W. B. Martin (1); Metabolism of NA in *Paramecium*, A. Shigematsu; Kappa in a macronucleate *Paramecium aurelia*, R. Nobili (2); Effect of macronuclear regeneration in *Paramecium aurelia*, R. Nobili (1); Enucleation and P-uptake in *Stentor*, N. de Terra (1); Nuclear and cytoplasmic reactions at division in *Stentor*, N. de Terra (2); Incorporation of thymidine into macronucleus of *Stentor*, E. & S. Guttus (2); Digestion in *Didinium*, G. J. Iziumov; Failure of monobacterially-fed *Paramecium* to support *Didinium*, W. D. Burbanck & J. D. Eisen; Carbohydrate metabolism of *Entodinium caudatum*, A. R. Abou Akkada & B. H. Howard.

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**Effects of chemicals, drug resistance.**—Action of anaesthetics on amoebae, R. J. Goldacre; poly-

sacchari  
Klinge;  
Effect o  
Guttus  
Oura; S  
growth  
concent  
of Actin  
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S. Aaro  
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Effect  
Tetrahy  
Proteol  
kinetin  
Adapte  
Seravin  
Dryl (2



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of fission by antiserum in *Paramecium*, T. M. Sonneborn (2); Antigens of *Paramecium*, J. O. Bishop & G. H. Beale; Effect of sera on *Paramecium*, L. Novák & I. Flešák; Transformation of antigenic type in *Paramecium*, S. Koizumi.

**Survival, degeneration.**—Survival of protozoa at low temperature, H. Mühlipfordt (2); Survival of *Amoeba leacherae* in dried cultures, M. Taylor; Preservation of motility and virulence of *Trypanosoma lewisi* at 79°, V. Molinari (1); Survival of human intestinal protozoa and *Trichomonas vaginalis* in faeces, D. Sibalić; Viability of cysts of *Opalina ranarum* and *Balantidium elongatum*, K. M. Sukhanova (1); Survival of gregarines *in vitro*, J. Moore; Survival of oocysts of chick coccidia, Z. M. Kogan (1); Preservation of *Plasmodium berghei* at 79°, V. Molinari (2); Survival of cysts of *Toxoplasma*, L. Jacobs, J. S. Remington & M. L. Melton (1); K. Fujita; Survival of *Toxoplasma* stored at 4°C, S. G. Vasina, Z. V. Dunasova; H. de Roever-Bonnet; Viability of *Eperythrozoon parvum* in pigs blood, J. Seamer.

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**Encystation, excystation.**—Viability of encysted *Naegleria*, B. Hajira & S. Mookerjee (2); Cyst formation by *Entamoeba histolytica*, L. Lamy (1); Effect of culture medium on encystation of *Entamoeba histolytica*, H. Neda (1); *Chilomastix mesnili* encystation *in vitro*, R. M. McQuay Jr.; Endocrine control of encystation of *Opalina*, M. El Mofly & J. D. Smyth; Failure to induce encystation *in vitro* of *Eimeria nieschulzi* oocysts, E. J. Landers Jr.; Coccidian oocyst sporulation, M. H. Haiba & M. K. Selim; Filament extrusion in spores of *Nosema* A. F. West Jr.; Excystation of *Ichthyophoriosis hoferi*, A. Dorier & C. Degrange (2); Bacteria and encystation in *Tetrahymena rostrata*, W. E. Wilhelm; Factors influencing encystation and excystation in *Vorticella microstoma*, H. F. Finley & A. C. Lewis; Induction of excystation in *Bursaria*, A. Miyake (4).

**Sexuality, mating types.**—Sexuality in *Patellina corrugata*, K. G. Grell; Sexual differentiation in *Patellina*, K. G. Grell (2); Sexuality in *Mallomonas fastigata*, F. Wawrik (2); No interspecies transfer between *Trypanosoma cruzi* ind. *T. lewisi* in rodents or triatomid host, Y. U. Amrein & C. D. Wiens; Changes in sexual cycles of *Cryptocercus* protozoa by host transfer, L. R. Cleveland & A. W. Burke Jr.; Modifications of sexual cycle of protozoa of *Cryptocercus* by ecdysone, L. R. Cleveland, A. W. Burke Jr. & P. Karlson; Sexuality in ciliates, discussion, M. F. Canella (1), (2); Factors affecting mating types in ciliates, D. L. Nanney (1); Experiments on conjugation in *Cyclophrya*, J. Kormos & K. Kormos (2), (3); Sexuality and taxonomy of *Paramecium*, T. M. Sonneborn (1); Intrafertile colony of *Paramecium*, R. W. Siegel (1); Cell membrane at conjugation in *Paramecium*, L. Schneider (2); RNA and pseudoselfing in *Paramecium*, S. Hayashi; Locality of mating reactivity in *Para-*

*mecium*, K. Hiwatashi (2); Experimental induction of selfing in *Paramecium*, A. Miyake (3); Chemical induction of conjugation in *Paramecium* spp., A. Miyake (5); Breeding system of *Paramecium*, S. R. Taub; Conjugation in *Paramecium caudatum*, E. Vivier (1); Mating types in *Paramecium calkinsi*, A. Makata; Induction of conjugation by Mn in *Paramecium caudatum*, K. Hiwatashi & K. Tokuhiko; Aberrant selfing strain of *Paramecium caudatum*, K. Hiwatashi (1); Macronucleus in *Tetrahymena*, S. L. Allen & D. L. Nanney; Varieties of *Tetrahymena pyriformis* in Europe, A. M. Elliott, M. A. Addison & S. E. Carey; Mating types in *Tetrahymena pyriformis*, D. L. Nanney (3); Effect of autogamy on clonal decline in *Tetrahymena rostrata*, J. O. Corliss & M. P. Dysart; Bacteria and autogamy in *Tetrahymena rostrata*, W. E. Wilhelm; The nucleus at conjugation in *Euplotes*, R. Katashima (2); Conjugation in *Blepharisma undulans*, A. V. Bhandary.

**Behaviour.**—Responses and feeding of *Actinophrya*, J. A. Kitching (2); Modification of chemotaxis in *Paramecium*, S. Dryl (1); Reactions of *Paramecium*, B. Párduez; Pseudo-mating reaction at fission in *Spirostomum ambiguum*, H. E. Finley (3); Cannibal giants of *Blepharisma*, N. Tulchin & H. P. Hirschfeld.

**Locomotion.**—Theory of amoeboid movement, E. C. Bovee (2); R. D. Allen 1, 2; R. D. Allen & J. D. Roslansky; J. L. Griffin & R. D. Allen; Cytoplasmic consistency and amoeboid movement, R. D. Allen (2); Visco-elasticity of ectoplasm in *Amoeba*, K. Yagi; ATP activity in flagella of *Chlamydomonas*, C. J. Brokaw; Mechanism of change of ciliary beat in *Opalina*, Y. Naitoh; Ciliary beat in *Stentor* and *Opalina*, M. A. Sleight; Ciliary waves of *Paramecium*, B. Párduez; Stalk 'nausea' of *Carchesium*, H. Sugli.

**Cultivation.**—A simple method for isolating protozoa *in vitro*, A. Phelps & B. Fernández; Use of avian embryos and tissue culture in the study of Protozoa, A. C. Pipkin; Use of media devised for a particular purpose, diagnosis, isolation, etc., L. Lamy (3); Culture of *Naegleria gruberi*, S. L. Chang (1); Growth of *Entamoeba histolytica* with *Bacterioides* treated with <sup>60</sup>Co, R. E. Reeves, D. I. Schweinfurth & W. W. Frye; Amino acid base for cultivation of *Entamoeba histolytica*, R. E. Reeves, N. G. Latour & W. W. Frye; Establishment of clones of *Entamoeba histolytica* in S-F medium, C. W. Rees, I. D. Key & J. G. Shaffer; Cultivation of *Entamoeba histolytica* from amoebae containing stools stored at room temperature, N. N. Gleason, M. Goldman & R. K. Carver; Unusual amoebic growth in cultures of *Entamoeba histolytica*, H. Kunert; Axenic cultivation of *Entamoeba terrapinae* and *E. invadens*, L. S. Diamond; Ingestion of penicillin altered streptobacilli by *Entamoeba histolytica*, J. G. Shaffer & I. Key; Cultivation of small race of *Entamoeba histolytica*, J. G. Shaffer etc.; Monoxenic growth of *Entamoeba histolytica* with haemoflagellates, C. T. Pan; Cultivation of *Dientamoeba fragilis*, L. Lamy (2); Monoxenic culture of *Arella*, A. Cihak & J. B. Wittenberg; Culture of Foraminifera, J. J. Lee etc.; Mass cultivation of phytoflagellates, J. J. A. McLaughlin et al.; Axenic culture of *Katodinium dorealisuleum* sp. n. E. M. Hultkurt, J. J. A. McLaughlin & P. A. Zahl; Cultivation of *Ochromonas danica*, O. Frank et al.; Culture of *Euglena gracilis*, M. K. Bach; Cultivation of *Blastocystis thalassophilus* from box elder bug, F. G. Wallace, & M. I. Dyer; Growth of *Leishmania braziliensis* in tissue culture,

A. C. Pipkin & W. C. Coles; Growth of *Leishmania enriettii* in tissue culture, M. P. de Castro & S. C. Pinto; Cultivation of trypanosomes and *Leishmania* in new medium, J. Jadin & G. Pierreux; Long term cultivation of *Trypanosoma cruzi* and *Leishmania donovani*, W. P. Horen; Cultivation of *Trypanosoma equiperdum*, J. C. Ortega & A. R. Torres; Cultivation of *Trypanosoma gambiense* and *T. rhodesiense*, D. Weinman (2); Multiplication of *Trypanosoma rhodesiense* and *T. gambiense* in tissue culture, J. Demarchi & T. Nicoli (1), (2); Culture differences between *Trypanosoma rhodesiense* and *T. brucei*, D. L. Lehmann (3); Cultivation of trypanosomes on chick embryos, V. F. Novinskaja; Cell destruction in culture by trichomonads, W. P. Switzer; Growth of trichomonads on agar plates, R. Samuels & D. J. Stouder; Defined medium for trichomonads from poikilotherms, J. J. Lee, S. Pierce & R. Samuels; Cultivation of pig trichomonads, C. P. Hibler etc.; Cultivation of *Hypotrichomonas acosta*, J. J. Lee & S. Pierce; Cultivation of *Trichomonas vaginalis*, H. Holečková-Červová; Cholesterol in the cultivation of *Trichomonas foetus*, J. Galuszka (2); Cultivation of *Giardia intestinalis*, A. E. Karapetian (1), (2), (3); *Histomonas meleagridis* cultured in modified tissue culture medium, E. Lesser (2), (3); Cultivation of opalinids in liquid medium, W. C. T. Yang; Development of gametocytes of *Plasmodium gallinaceum* in vitro, A. Bishop & E. W. McConachie; Development of the mosquito stages of *Plasmodium relictum* in vitro, G. H. Ball & J. Chao; Growth of *Plasmodium elongatum* in cultures of duck tissues, M. L. Weiss & R. D. Maxwell; Medium for cultivation of *Balantidium* from pigs, R. N. Appasov (3); Axenic culture of killer strains of *Paramecium*, A. T. Soldo; Growth of *Tetrahymena* in vitro, D. M. Prescott (1); Culture of *Opisthoptera*, H. E. Finley (2); Non-axenic and axenic growth of *Vorticella*, H. E. Finley, D. McLaughlin & D. M. Harrison; Culture of *Stylonychia pustulata*, M. M. Rice & D. M. Lilley; Cultivation of rumen protozoa, G. S. Coleman (1); Growth of rumen ciliates in vitro in the presence of penicillin, G. S. Coleman (2); Growth of *Encephalitozoon* in chick embryos, H. Iino (1).

**Miscellaneous.**—Genetic control of cell surface, G. H. Beale (2); Luminescence in Protozoa, J. A. C. Nicol (1), (2); Osmotic properties of mitochondria in *Acanthamoeba*, R. L. Klein & R. J. Neff; Streaming in cytoplasm from *Chaos chaos*, R. D. Allen, J. W. Cooledge & P. J. Hall; Enflagellation in *Naegleria gruberi*, S. L. Chang (2); Agglutination and fruiting-body induction in *Dictyostelium* (Mycetozoa), G. Gerisch; Intensity of luminescence of dinoflagellates, G. L. Clark & L. R. Breslau; Bloom of *Euglena sanguinea* (Holland), C. Bakker; Induction of macronuclear division by osmosis, A. Miyake (2); Morphogenesis of *Chlamydomonas*, M. Kaneda (1); Differentiation in *Paramecium*, G. H. Beale (3); Plasmolysis in *Paramecium*, T. Wada; Experimental break down of macronucleus in *Paramecium*, A. Miyake (1); Action of *Paramecium* killer on other organisms, J. A. Mueller & T. M. Sonneborn; Hemixis in *Blepharisma*, P. B. Padmarathi (2); Nuclear control of morphogenesis in *Euplotes*, R. Katashima (1).

#### DEVELOPMENT

**Rhizopoda.**—Ontogeny of *Textularia carinata*, A. G. Tauber; Ontogeny of the Fusulinids, D. M. Rauter-Tchernousova; The growth and form of

*Pseudoschwagerina miharanoensis*, S. Akagi; Development of nucleoles in Radiolaria, A. Hollande & M. J. Cachou-Enjume (2).

**Metastigophora.**—Life-history of *Coccilithius pelagicus*, M. Parke & J. Adams; Life-history of *Oodinium pillularis* on fish, A. Geus (2), (3); Life histories of *Haematococcus* spp., M. A. Pocock; Development of haemoflagellates, C. A. Hoare (2); Development of *Herpetomonas ludwigi*, K. Vickerman (2); Stages in the life cycle of *Leishmania donovani*, R. J. V. Pulvertaft & G. F. Hoyle; Cyst stage in the life cycle of *Trypanosoma cruzi*, I. I. Silva (2), (3), (4); Evidence against development of trypanosomes from crithidia in *Trypanosoma cruzi*, G. Elkeles; Division of *Trichomonas foetus*, S. M. Pak (2); Modifications of sexual cycle of *Cryptocercus* protozoa by ecdysone, L. R. Cleveland, A. W. Burke Jr. & P. Karlson; Changes in sexual cycle of *Cryptocercus* protozoa by host transfer, L. R. Cleveland & A. W. Burke Jr.; Life cycle of *Protoopalina canevi*, K. M. Sukhanova (3).

**Sporozoa.**—Problems of development amongst the Sporozoa, G. H. Ball; Development of sporocysts of *Monocystis*, D. A. Conroy (1); Development of *Monocystis* sp. in *Hoplia* larvae, J. Weiser & H. Wille; Life history of *Mecistophora legeri* gen. n., sp. n., P. N. Ganapati & C. C. Narasimhamurti (1); Life cycle of *Monocystella*, P. de Puytorac & J. Grain; Life history of *Adelea hyalospora* sp. n. from centipede, C. C. Narasimhamurti; Development of *Eimeria neosciuri* sp. n. in small intestine of squirrels, J. M. Webster & H. Prasad; Development of *Eimeria magna*, E. M. Cheissin; Exo-erythrocytic forms of human malarial parasites in chimpanzee liver, R. S. Bray (4); Exo-erythrocytic schizogony of a malaria parasite of a flying squirrel, H. N. Ray; Development of exoerythrocytic stages of *Plasmodium gallinaceum* and *P. fallax*, C. G. Huff etc.; Development of exoerythrocytic forms of *Plasmodium gallinaceum* in the mosquito, A. B. Weathersby; Development of *Plasmodium berghei* in *Anopheles quadrimaculatus* and *A. aztecus*, M. Yoeli & H. Most; Pre-erythrocytic development of *Plasmodium malariae* in chimpanzees, R. S. Bray (3); Exoerythrocytic cycle of *Plasmodium cynomolgi*, D. E. Eyles (2); Development of *Nosema* sp. in the fat body of the flour beetle, A. F. West Jr.; Life history of *Nosema lepiduri* sp. n., J. Vavra (3); Amoeboid stage of *Ichthyophorus*, A. Dorier & C. Degrange (1); Life cycle of *Haplosporidium* in snails, J. H. Barrow Jr.; Life history of *Nephridiophaga xenoboli* sp. n., P. N. Ganapati & C. C. Narasimhamurti (2).

**Ciliata.**—Morphogenesis in ciliates, P. B. Weiss (1); Life cycle of *Homalozoon vermiculare*, W. F. Diller; Development of meganucleus in *Loxodes*, I. B. Raikov (2); Morphogenesis in *Bressiana* and other Colpodidae, J. D. Stout; Life cycle of amphibian *Balantidium*, K. M. Sukhanova (1), (2); Structure and development of sutorians, Y. Guilcher; Encystation in Suctoridan life histories, K. Kormos (1); development of suctorida, J. & K. Kormos (1); Conjugation in *Urnulla*, K. Kormos (4); Development of larva of *Parapodophrya*, K. Kormos (2); Conjugants of *Discopodophrya*, K. Kormos (3); Life-cycles of *Hyalospora caridiniae* and *Terebrosira lenticularis*, P. Debaisieux; Life-cycle of *Tetrahymena rostrata*, E. W. McArdle (1); Effect of autogamy on decline in *Tetrahymena rostrata*, J. O. Corliss & M. P. Dysart; Life history of *Tetrahymena patula*, N. E. Williams (1); Morpho-

genesis of buccal organellae in *Paramecium*, E. D. Porter; Suppression of fission by antiserum in *Paramecium*, T. M. Sonneborn (2); Stentor-morphogenetics (popular account), P. B. Weiss (2); Evolution of Ophryoscolecidae, C. Noiret-Timothee (2); Life-history and morphogenetics of *Euplotes*, M. Tuffrau;

## EVOLUTION, GENETICS AND VARIATION

**Evolution, phylogeny.**—Phylogeny of protozoa, J. O. Corliss (2); G. H. Kerkut; Evolution of protozoa, O. H. Schindewolf; Evolution of the Metazoa, J. R. Nursall; Origin of Metazoa, E. Fauré-Fremiet (2); Phylogeny of flagellates and other classes of Protista, A. P. Skabitschevskii; Evolution of *Entamoeba*, I. de Carneri (2); Phylogeny in Testacea, L. Decloitre (4); Orthogenesis in Foraminifera, J. Hofker (23); Evolution of Foraminifera, S. von Bubnoff; Phylogeny and Evolution in foraminifera, F. Bettenstaedt; Phylogeny of *Epistomina*, Y. H. Smutter; Orthogenesis of *Gavelinopsis involuta* (Reuss) from the Cretaceous of Germany, J. Hofker (14); Ontogeny of the Tournayellidae, O. A. Lipina (1); Evolution of *Globigerina pseudobulloides* from the German Cretaceous, J. Hofker (15); Evolution in *Bolivina* from the Cretaceous of Germany, J. Hofker (11); Phylogenetic development of certain representatives of the Peneropliidae, Y. Y. Didkovsky (1); Evolution of *Mississippina binkhorsti* Reuss from the German Cretaceous, J. Hofker (9); Evolution in the American Lepidocyclinidae, T. F. Grimsdale (1), (2); Evolution of *Globigerina bulloides*, W. H. Blow; Evolution in *Cyclolypus* Carpenter, H. J. Macgillavry; Evolution of *Lituola grandis*, J. H. Ziegler; Evolution of the genus *Orbulina*, W. H. Blow; Affinities of *Chromulina*, I. Manton & M. Parke; Evolution and phylogeny of haemoflagellates, C. A. Hoare (2); Phylogeny of Colpodiidae, J. D. Stout; Phylogeny of Suctorida, J. Kormos (1); Suctorian larva and phylogeny, J. Kormos & K. Kormos (4); Adaptations in *Paramecium*, G. H. Beale (1).

**Heredity.**—Developmental genetics in Protozoa and Metazoa, D. L. Nanney (4); Genetic control of cell surface, G. H. Beale (2); Mathematical model of sub-nuclear segregation, J. V. Schensted; Cellular inheritance in amoebae, J. F. Danielli; Genetics of *Chlamydomonas*, R. Sager, R. P. Levine, R. P. Levine & W. T. Ebersold (1), (2); Loss of chlorophyll synthesis in *Euglenids*, M. de Deken-Grenson; Capacity to photosynthesize in *Euglena*, M. de Deken-Grenson & A. Godts; Hereditary symbiosis of *Paramecium* and zoochlorellae, R. W. Siegel (2); Transmission of single and double *Paramecium*, T. M. Sonneborn & R. V. Dippell; Antigens of *Paramecium*, J. O. Bishop & G. H. Beale; Genetic control in *Paramecium*, G. H. Beale (3); Genetics of kappa in *Paramecium aurelia*, E. Balbinder; Mutation induction and nuclear synthesis in *Paramecium*, R. F. Kimball & S. W. Perdue; Inheritance of cytoplasmic damage in *Paramecium*, E. D. Hanson (1); Genetics of kappa in *Paramecium*, E. D. Hanson (2); Gene and cytoplasmic determinants of monster formation in *Paramecium*, R. Maly (1); Experimental normalization of mutations in *Paramecium*, R. Maly (2); Inherited defects in *Paramecium*, R. Maly (3); Genetics of esterase variation in *Tetrahymena*, S. L. Allen (3); Analysis of macronucleus in *Tetrahymena*, S. L. Allen & D. L. Nanney; Genetics of mating types in *Tetrahymena pyriformis*, D. L. Nanney (3); Genetics of *Tetra-*

*hymena pyriformis*, E. Orlas; Abnormal segregation in *Tetrahymena pyriformis*, S. L. Allen.

**Variation.**—Dimorphism and polymorphism in Foraminifera, R. M. Nyiró (2); Morphological variation in Foraminifera, F. G. Mazza; Variation in index Foraminifera, O. Pazdro (2); Variation in *Bolivina* from the Cretaceous of Germany, J. Hofker (11); Variation in *Agathammina pusilla* Geinitz from the Permian of Poland, H. Wolanska; Variation in *Bolivina dentellata* Tavan, G. Tavan (2); Variation in *Operculina*, K. Hooper; Variation in American Larger Foraminifera, W. S. Cole (5); Variation of Jurassic miliolids, O. Pazdrawa (2); Polymorphism in Mesozoic and Kainozoic Foraminifera, O. K. Kaptarenko-Chernousova (1); Species variation among araneous Silurian foraminifera from Illinois, H. Schwab & C. Collinson; Transformation of amoebae, A. A. Schaeffer; Variation in shape and size of spores of *Perezia pyraustae*, J. P. Kramer; "Small" strains of *Tetrahymena rostrata*, E. W. McArdle (2); Comparison of strains of *Tetrahymena rostrata*, E. W. McArdle (1); Characters of epizoid Peritrichida, J. Stiller (1); Reproducible abnormality in *Stentor*, V. Tartar (3); Strain differences in *Stylonychia*, B. L. Reed & D. M. Lilley.

**Biometry.**—Size of *Entamoeba gingivalis*, A. F. Toomka; Variations of size of haemogregarine and the parasitized red cell, R. W. Hull & J. H. Camin; Biometries in *Agathammina pusilla* Geinitz from the Permian of Poland, H. Wolanska.

## ECOLOGY

**General.**—Encrusting mode of growth in foraminifera, S. Hanzawa (1); Succession of Protozoa in bamboo containers, Y. Kurihara; Study of Protozoa (popular article), M. Mayer; Application of Bergmann's and Allen's rules to some Protozoa, C. Ray; Amoebae (popular article), F.-M. Engel; Ecology of flagellates (Belgium), L. van Meel; Peritrich and suctorian ciliates in association, D. Matthes; Ciliates from Cicada-froth, J. Buchar (1); Explosive bloom of *Strobilidium* in "mizukawari", T. Ho & T. Iwai (1).

**Behaviour.**—Food relations of Protozoa, E. J. Perkins; Feeding behaviour of some amoebae, E. C. Bovee (7); Feeding in verrucosid amoebae, E. C. Bovee (5); Feeding aggregates in Heliozoa, M. Deckart (1); Feeding habits of *Noctiluca*, R. R. Prasad; Daily changes in ciliate populations, S. S. Bamforth; Conditioning in *Paramecium*, A. F. Mirsky & M. S. Katz; Feeding in *Platyphrya*, F. Biezák; Functions of stalk in *Vorticella*, G. N. Gassovsky; Feeding in *Urula* spp., K. Kormos (4).

## HABITAT, AQUATIC

**Marine.**—Characters of phytoplanktonic groups of Protozoa, E. de Sousa & Silva (3); Seasonal changes off N.Z. coast, V. Cassie; Some protozoa of the Gt. Barrier Reef, K. Gillett & F. McNeill; Protozoa from Mediterranean Sea (off Taranto), C. M. de Angelis & R. D. Valle; Planktonic Protozoa of the Gulf of Cagliari (Med. Sea), C. Anichini; Notes on littoral Protozoa, E. Fauré-Fremiet (1); Plankton of N.W. Pacific, B. G. Bogarov; Plankton of Brazilian coast, R. Barth; Adriatic plankton, B. Battaglia, C. Mozzi & A. M. Varauolo; Phytoplankton and marine fertility, F. Bernard (1); Phytoplankton from equatorial Pacific, quantitative study, G. R. Hasle; Seasonal



eyelo of planktonic Protozoa (Portuguese Guinea), E. de Sousa e Silva & J. dos Santos Pintos; Phytoplankton N.W. Black Sea, V. J. Petrova; Phytoplanktonic pigments and colour of sea-water, C. S. Yentsch; Zoo- and phytoplankton of Black Sea, M. Băcescu & N. Serpianu et al.; Zooplankton of Black Sea, C. Mărgineanu & A. Petran; Ecology of present day Protozoa from Florida; Ecology of Foraminifera, P. D. Blackman & R. Todd; Ecology of Protozoa from the Danube, E. Kol & L. Varga; Ecology of the Discocyclinidae, T. Kecskeméti (2); Ecology of the Asterigerinids, J. Hofker (20); Ecology of the Lituolidae, W. Mayne (4); Ecology of Eocene foraminifera from France, A. Rouville; Ecology of Dutch Holocene foraminifera, J. H. Van Voorthuysen (2); Ecology of recent foraminifera from Italy, G. Fierro; Ecology of Pleistocene foraminifera from Italy, H. Lazzari; Ecology of Recent foraminifera from Italy, A. G. Soika; Ecology of Recent foraminifera from the Ligurian Sea, M. Giunta; Ecology of Recent foraminifera from Roumania, C. Mărgineanu; Ecology of Mediterranean foraminifera from Capri, G. Bitterton; Ecology of Recent foraminifera from the Mediterranean, J. Bourcart; Ecology of foraminifera from the Black Sea, N. Macarovič & C. Mărgineanu & B. Cehan-Jones; Ecology of Recent foraminifera from the Red Sea, M. Avnimelech (2); Ecology of Foraminifera from Israel, Z. Reiss (1); Ecology of North Asiatic coastal foraminifera, W. Polski; Ecology of Asian shelf foraminifera, H. O. Waller & W. Polski; Ecology of Recent planktonic foraminifera from the western North Atlantic, A. W. H. Bé (2); Ecology of Radiolaria from the Antarctic, C. W. Thomas; Ecology of Recent foraminifera from the Arctic Ocean, J. Jarke (2); Ecology of Recent foraminifera from the South Atlantic, E. Boltovskoy (1); Ecology of foraminifera from ocean currents, E. Boltovskoy (4); Ecology of foraminifera from the Philippines, J. J. Graham & P. J. Militante; Paleotemperature of Pacific bottom waters, O. L. Bandy (1); Ecology of Pacific planktonic foraminifera, J. S. Bradshaw; Paleotemperatures of Pacific bottom waters, C. Emiliani (1); Ecology of Recent foraminifera from the Pacific, E. D. McKee & J. Chronic & E. B. Leopold; Ecology of Recent foraminifera from Japan, K. Asano (4); Ecology of recent foraminifera from Japan, M. Ichihara & K. Nakaseko; Ecology of Recent foraminifera from Japan, T. Matsuda; Ecology of foraminifera from Japan, K. Sawai; Foraminiferal environments on coast of Gulf of Mexico, N. N. Greenman & R. J. Le Blanc; Ecology of foraminifera from the Gulf of Mexico, D. R. Moore; Ecology of foraminifera from the Texas Coast, H. S. Ladd; Ecology of foraminiferal populations along the Texas coast, F. B. Phleger (2); Ecology of Recent foraminifera from Texas, E. H. Shenton; Ecology of Californian coastal foraminifera, E. R. Zalesny; Foraminiferal ecology along Florida coasts, R. M. Ginsberg; Ecology of foraminiferal biofacies off California, R. H. McGlasson; Ecology of intertidal foraminifera from California, M. Reiter; Ecology of Recent foraminifera from Brazil, I. de M. Tinoco (2); Ecology of coastal lagoon foraminifera from Brazil, I. de N. Tinoco (3); Ecology of *Lepidocyclina*, I. M. Van der Vlerk; Relationship between foraminifera and bathymetry, O. L. Bandy (2); Coiling of *Globigerina pachyderma* as a climatic indicator, D. B. Ericson; Foraminifera below 6000 m (lists), T. Wolff; Foraminifera in Black Sea sand, M. Băcescu & H. Dumitrescu et al.; Ecology of Radiolaria in Antarctic, W. R. Riedel (1); Dinoflagellates at Ville-

franche-sur-Mer, Y. Halim (1); Ecology of Tintinnids from Israel, B. Komarovskiy.

**Brackish.**—Ecology of Recent foraminifera from Japan, Y. Ishiwada; Foraminifera from the Mississippi Delta, R. R. Lankford; Ecology of marsh foraminifera in Popponesset Bay, Massachusetts, F. L. Parker & W. D. Athean; Recent foraminifera from Louisiana, A. D. Warren; Unusual *Cochliopodium* sp. from salt spring, E. C. Bovee (3); Salt tolerance of brackish and fresh water ciliates, P. & R. Ax.

**Freshwater.**—Limnology of a lake with special reference to a power-station, V. Sládeček, L. Fiala & A. Sládečková; Microbenthos of fish-ponds, A. Čzapik; Protozoa from mountain waters, A. Abrahám, F. Biczók & J. Megyeri; Protozoa and ecology of L. Ochrid, S. Stanković; Protozoa from ponds (France), J. Wurtz-Arlet; Protozoa from swamps (Hungary), J. Stiller (2); Biology of Hungarian water basin (incl. protozoa), V. Reháčková; Protozoa from Rumanian lake, J. Lepš (4); Some protozoa from L. Graeca (Rumania), A. Nicolau, P. Popovici & A. Christian; Ecology of protozoa from N. American lake, A. N. Bragg; Limnology of ponds (Czechoslovakia), O. Pravda, J. Bican & F. Bron; Limnology of reservoir (Jugoslavia), M. Štěpánek & J. Chalupa; Protozoa of Nigerian river, M. J. Holden & J. Green; Ecology of planktonic protozoa in stagnant waters, G. Farrugia-Fougerouse; Vertical migration of plankton (incl. named Protozoa) H. Järnefelt; Phytoplankton of ponds (Poland), H. Bucka; Distribution of zooplankton in a reservoir (Czechoslovakia), M. Štěpánek & E. Červenkova; Planktonic protozoa of Rumanian lakes, V. Enăceanu; Planktonic protozoa from Danube delta, C. Moruzi, C. A. Vasiliu & M. S. Jancu; Ecology of plankton in open waters (L. Balaton), O. Sebestyén (2); Plankton of artificial lake (Jugoslavia), D. Milovanović & A. Živković; Plankton in Skadar Lake (Jugoslavia), R. Nedeljković; Winter plankton from Ohio quarry, B. C. Cowell; Zooplankton of pools in Tokio, H. Kurasawa; *Pelomyxa* as polysaprobe, D. H. Stern; Ecology of moss Rhizopoda from Hungary, V. Lajcs; Ecology of colourless Euglenids from Swiss lake, H. B. Christen; Ecological niche of *Ceratium hirundinella*, O. Sebestyén (1); Ciliates from tree borne mosses, J. C. Thompson; Ciliates from L. Balaton (Hungary), J. Gellért & G. Tamás (1); Ciliates from detritus-drifts (L. Balaton) G. Tamás & J. Gellért (2); Ciliates in L. Balaton, G. Tamás & J. Gellért (1); Ciliates from detritus-drifts, L. Balaton, J. Gellért & G. Tamás (1, 2); Ciliates from Ukrainian reservoir, V. V. Gurvich; Ciliates from foul water, H. Bick (1); Peritrichida on Cladocera and Copepoda, A. Geus (1); *Paramecium* spp. in Czechoslovakia, V. Danielova.

**Sewage.**—Treatment of sewage, V. Sládeček; Protozoa in sludge, K. Scherb; Ciliates of sewage contaminated fjord (Schleswig-Holstein), K. J. Bock; Effect of dilution on ciliates from sewage, H. Bick (3).

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Protozoa from dry "pool", L. Varga & T. Takáts; Protozoa from wood litter (Hungary), L. Varga; Protozoa from oak wood (Rumania), J. Lepš (1); Testacea from a prehistoric station (France) D. Chardez (4).



## PALAEOECOLOGY

Migration in fossil populations, H. Termier & G. Termier; Protozoologie, O. Jiroumae et al.; Palaeoecology of foraminifera, F. B. Phleger (1); Palaeoecology of foraminifera, California, E. R. Zalesny; Palaeoecology of Upper Palaeozoic foraminifera from America, A. H. Coogan; Palaeoecology of Carboniferous foraminifera from central India, S. B. Bhatia & S. K. Singh; Palaeoecology of Carboniferous foraminifera from Russia, E. A. Ivanova; Palaeoecology of Carboniferous foraminifera from Japan, Y. Okimura; Ecology of the Hystrichosphaeridae from the German Tertiary, D. Maier (2); Palaeoecology of Permian foraminifera from Australia, I. Crespin (1); Palaeoecology of Lower Cretaceous foraminifera from Texas, W. H. Matthews III; Tertiary palaeoecology of Atlantic, C. Emiliani (2); Palaeoecology of Tertiary foraminifera from Czechoslovakia, I. S. Suleimanov; Palaeoecology of Eocene foraminifera from France, A. Rouvillois; Palaeoecology of Miocene foraminifera from Poland, R. Gradzinski; Palaeoecology of Miocene foraminifera from Western India, S. R. Bhatia & K. Mohan; Palaeoecology of Miocene foraminifera from South Africa, P. Biesiot; Palaeoecology of Miocene foraminifera from Florida, H. Puri & R. O. Vernon; Palaeoecology of Miocene foraminifera in California, L. E. Garrison; Palaeoecology of Miocene foraminifera from California, R. L. Pierce; Palaeoecology of recent foraminifera from the North Sea, J. H. Van Voorthuysen; Palaeoecology of Recent planktonic foraminifera from the western North Atlantic, A. W. H. Hé (2); Palaeoecology of North Asiatic coastal foraminifera, W. Polski; Palaeoecology of Asian shelf foraminifera, H. O. Waller & W. Polski; Palaeoecology of Recent foraminifera from the Arctic Ocean, J. Jarko (2); Palaeoecology of Recent foraminifera from Trinidad, C. W. Drooger & J. P. H. Kaasschieter; Palaeoecology of Recent foraminifera from Japan, M. Ichihara & K. Nakaseko; Palaeoecology of Recent foraminifera from Brazil, I. de M. Tinoco (2); Palaeoecology of intertidal foraminifera from California, M. Reiter; Palaeoecology of foraminiferal populations along the Texas coast, F. B. Phleger (2); Palaeoecology of a foraminifera biofacies off California, R. H. McGlasson; Palaeoecology of a reef building foraminifera from Jamaica, V. A. Zano; Palaeoecology of *Gouppillaudina*, P. Marie; Palaeoecology of miliolids, J. Conkin & B. Conkin; Palaeoecology of pelagic foraminifera from equatorial Atlantic and Caribbean, D. B. Ericson & G. Wollin; Foraminifera in glacial chronology, H. E. Suess.

## SYMBIOSIS

Suctorida on Adriatic Mysidacea, J. Hoenigman; Symbiosis of *Paramacium bursaria* and *Chlorella*, R. W. Siegel & S. J. Karakashian; *Paramacium bursaria* and its zoochlorellae: inheritance and transmission, R. W. Siegel (2); Algae of *Condyllostoma tenuis* E. Fauré-Fremiet (4);

## PARASITISM

## GENERAL

Host-parasite relationship.—Research on host influence on parasite physiology, J. D. Fulton (1); Fish and their parasites as an ecological study, E. R. Noble; Reticulo-endothelial system in experimental malaria and trypanosomiasis, F. C. Goble & I. Singer; Review of host-parasite relations in amoebiasis, C. A. Hoare (3); Permanent artificial caecal fistula as an aid to the study of amoebiasis, R. N. Chaudhuri,

T. K. Saha & N. Roy; Absence of relationship between proteolytic enzymes and virulence of *Entamoeba histolytica*, R. A. Neal; Cholesterol did not increase the virulence of *E. histolytica* to rats, R. A. Neal & A. Stewart; Duration of invasiveness of *Entamoeba histolytica* in vitro, P. Vincent & R. A. Neal; Study of redox potential and pH of caecal contents of rabbits infected with *Entamoeba histolytica*, I. E. Shakhnazarova; Inhibition of invasiveness of *Entamoeba invadens* by low temperature, J. H. Barrow Jr. & J. J. Stockton; Natural and experimental infections of *Entamoeba muris*, J. Pruss (1); Pathogenicity of *Hydramoeba hydrozoa* to *Hydra*, N. E. Rice; *Godinium pillularis* on fishes, A. Geus (2); Reduced glycogen synthesis and lipid infiltration in trypanosome infected animals, T. I. Mercado & T. von Brand; Infection of larvae of *Galleria mellonella* with various trypanosomid flagellates, J. Linder; Visceral infection of *Rhombomys* with *Leishmania tropica*, G. D. Drukin, E. N. Kabakov, & D. N. Maksheev; *Leishmania brasiliensis* represents a series of species, varieties or races of widely different biological properties, F. Pifano; Hamster infections of *Leishmania brasiliensis pifanoi*, R. Medina & J. Romero; Phagocytosis of trypanosomes, L. E. Stephen; Changes in mixed experimental trypanosome infections due to differences of multiplication rates, T. von Brand & E. J. Tobie; Length of prepatent period of *Trypanosoma* spp. according to number of trypanosomes inoculated, J. R. Baker (2); Effect of *Trypanosoma brucei* on enzymes, ions, lipids and proteins of guinea-pigs, A. Benedetto etc.; Mice protected from *Trypanosoma gambiense* by simultaneous infection of *Borrelia*, M. Larivière, P. Hocquet, P. Camerlynck; Decrease of serum cholesterol of rats during *Trypanosoma gambiense* infection, H. Fromentin, S. Korach & G. Sandoz; Red cell sedimentation rate in human *Trypanosoma gambiense* infections, L. T. A. Franco & F. S. Cruz Ferreira; Multiplication of *Trypanosoma evansi*, S. Inoki etc.; Pathogenicity of *Trypanosoma evansi* for various mammals in Kazakhstan, I. G. Galuzo, & V. F. Novinskaja; Experimental equine infections with *Trypanosoma vivax*, L. E. Stephen & C. P. Mackenzie; Reticulo-endothelial blockade using colloidal thorium dioxide increases virulence of *Trypanosoma cruzi*, F. C. Goble & J. L. Boyd; Variation of strain characteristics of *Trypanosoma cruzi* according to number of trypanosomes inoculated, N. R. Phillips (1); Digestive tract changes in mice infected with *Trypanosoma cruzi*, M. Okumura; Stress factors on lesion formation in *Trypanosoma cruzi* infections, N. Botafogo Gonçalves; Increase of virulence of *Trypanosoma cruzi* in thiamine deficient rats, R. G. Yaeger & O. N. Miller; Course of *Trypanosoma cruzi* infection in triatomid bugs, N. R. Phillips (2); Loss of virulence by *Trypanosoma lewisi*, J. Jadin etc.; Accelerated growth of rats infected with *Trypanosoma lewisi*, D. R. Lincicome, R. N. Rossan & W. C. Jones; Efficiency of sera from various animals to support growth of *Trypanosoma lewisi* in mice, D. R. Lincicome & E. H. Francis; Course of *Trypanosoma lewisi* infections in mice, D. R. Lincicome; Experimental infections of *T. lewisi* in gerbils, B. Juminer & J. A. Goudineau (1); Germ-free guinea-pigs more susceptible to *Trichomonas vaginalis*, W. L. Newton, L. V. Reardon & A. M. deLeva; Virulence transformation of *Trichomonas gallinae* by DNA, B. M. Honigberg & C. P. Read; Pathogenicity of *Trichomonas gallinae* to cultures of tissue cells, B. M. Honigberg & M. T. McLure; Breakdown of

cellulose, H. Sch...  
diarrhoea, Cullman...  
Experim...  
in turk...  
Relatio...  
secretio...  
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G. H...  
infectio...  
Sterilit...  
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virule...  
Interf...  
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Blood...  
auto-i...  
vitam...  
in m...  
iron...  
berphe...  
Effect...  
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by an...  
diabet...  
berphe...  
Plam...  
P. My...  
berphe...  
Lewco...  
ducks...  
parva...  
on la...  
D. J.

cellulose in the gut of termites by parasitic flagellates **H. Schmidt**; Association of *Giardia lamblia* with diarrhoea in man, **F. J. Payne** etc.; Penetration of duodenal wall by *Giardia*, **N. A. Dekkhan-Khodzhaeva**; *Cullinastiz* infections in *Cyclops*, **J. Vavra** (2); Experimental infections with *Hexamita meleagridis* in turkeys, **W. C. McGuire** & **N. F. Morehouse**; Relationship between encystation of *Opalina* and secretion of sex hormones by the host, **E. W. McConnachie**; Problems of parasitism in the Sporozoa, **G. H. Ball**; Reaction of the host (*Haploembia*) to infection with the gregarine *Diplocystis*, **R. Stefani**; Sterility in insects caused by infection with gregarine, **R. Stefani**; Correlation of increase of adrenal ascorbic acid by coccidiosis with haemorrhage, **J. R. Challey**; Pathogenicity of ovine *Eimeria*, **W. N. Smith**, **L. R. Davis** & **G. W. Bowman**; Oocyst production by bovine species of *Eimeria*, **W. C. Marguardt**; Time of arrival of merozoites of *Eimeria bovis* in the caecum after inoculation of oocysts, **D. M. Hammond**, **M. G. Miner** & **F. L. Andersen**; Concurrent infections with coccidia and nematodes in calves, **L. R. Davis**, **H. Herlich** & **G. W. Bowman** (1), (2); Detection of sublethal infections of *Eimeria tenella* and *Eimeria necatrix* by haematological methods, **L. P. Joyner** & **S. F. M. Davies**; Host-parasite relationship of chicks infected with *Eimeria acervulina*, **S. M. Krassner**; Host-parasite relationship of *Eimeria adenoides*, *E. meleagridis* and *E. meleagridis* of the turkey, **M. J. Clarkson** (2); Rhythm of appearance of *Isospora* oocysts in the faeces of the sparrow, **G. Schwalbach**; Duration of *Plasmodium* infections in man, **G. Covell**; Blood loss and replacement in simian malaria, **A. Zuckerman** (2); Growth of avian malaria in porous chambers inserted into the peritoneal cavity of birds and mice, **C. G. Huff** etc.; Blood loss in chicks infected with *Plasmodium gallinaceum* and *P. lophurae*, **A. Zuckerman** (3); Auto-immune response to inoculation of embryo blood infected with *Plasmodium lophurae*, **R. B. McGhee** (1); Alterations in serum proteins in *Plasmodium lophurae* infections, **I. W. Sherman** & **R. W. Hull** (1); *Plasmodium lophurae* does not degrade haemoglobin or prevent its synthesis by the chick, **I. W. Sherman** & **R. W. Hull** (4); Latent infections and premonition in *Plasmodium relictum* infections in canaries, **E. Sergent** (1); Duration of latent infections of *Plasmodium relictum* in canaries, **E. Sergent** (2); *Plasmodium juxtannulare* more virulent in splenectomised chicks, **M. A. Al-Dabagh**; Interference of virulence of *Plasmodium elongatum* by duck tissues, **M. L. Weiss** & **R. D. Manwell**; Blood-loss in *Plasmodium berghei* infections due to auto-antibody, **A. Zuckerman** (1); Influence of vitamins A and D on *Plasmodium berghei* infections in mice, **H. Payan** etc.; Alteration of splenic iron content of rats infected with *Plasmodium berghei*, **D. Allen**, **G. M. Edington** & **H. Schmieden**; Effect of reduced and increased atmospheric pressure on mice infected with *Plasmodium berghei*, **J. Aldighieri** etc.; Increase of virulence of *Plasmodium berghei* by anti-mouse red cell serum, **T. M. Schwinck**; Alloxan diabetes inhibits the development of *Plasmodium berghei* infections in rats, **M. G. Tolbert** & **R. B. McGhee**; *Plasmodium berghei* infections in the golden hamster, **P. Nye**; Renal function of rats infected with *Plasmodium berghei*, **R. Keeler** etc.; Effect of naturally transmitted *Leucocytozoon simondi* on White Pekin and Muscovy ducks, **N. T. Briggs**; Tissue reactions in *Theileria parva* infections, **S. F. Barnett**; Effect of *Nosema* sp. on larval trematodes, **W. W. Cort**, **K. L. Hussey** & **D. J. Ameal** (1); Pathogenicity of *Phistophora opero-*

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with *Trypanosoma gambiense*, J. Lapiere, J. J. Rousset & H. Picot; Relationship of trehalose to infectivity in *Trypanosoma gambiense* and *T. rhodesiense*, D. Weinman (1); Differences of morphology, virulence, antigens and chemotherapy between a syringe and *Glossina* transmitted strains of *Trypanosoma rhodesiense*, M. T. Ashcroft; Transmission of *Trypanosoma lewisi* to gerbils, B. Juminer & J. A. Goudineau (1); Infectivity of *Trypanosoma cruzi* to mice, I. G. Kagan & L. Norman; Placental transmission of *Trypanosoma cruzi*, A. C. Lisboa; Laboratory transmission of *Trypanosoma cruzi*, N. R. Phillips (2); *Triatoma protracta* from Los Angeles infected with *Trypanosoma cruzi*, S. F. Wood, E. D. Mitchell & M. J. Brenton; *Triatoma sanguisuga* found in Louisiana naturally infected with *Trypanosoma cruzi*, R. G. Yaeger & A. A. Bacigalupo; *Lankesterella* transmitted by mites, R. Lainson; Measurement of malaria transmission, G. Pringle, C. C. Draper & D. F. Clyde; *Anopheles albimanus* as a vector for *Plasmodium*, D. E. Eyles (1); Infectivity of malaria to mosquitoes, G. M. Jeffery (2); Transmission of malaria, G. Covell, *Anopheles gambiae* more susceptible to *Plasmodium falciparum* than *A. melas*, R. W. Burgess; Transmission of *Plasmodium malariae* to chimpanzees, R. S. Bray (3); Comparison of *Anopheles freeborni* and *A. quadrimaculatus* as vectors of *Plasmodium cynomolgi* and *P. inui*, D. E. Eyles (3); Transmission of *Plasmodium cynomolgi bastinelli* from macaques to man, D. E. Eyles, G. R. Coatney & M. E. Getz; Development of *Plasmodium gallinaceum* exoerythrocytic forms in the mosquito, A. B. Weatherby; Sporogony of *Plasmodium relictum* in DDT-resistant *Culex fatigans* identical to normal strain of mosquito, B. N. Mohan; Dispersal of *Plasmodium relictum*, M. Laird (2); Transmission of *Plasmodium berghei* by *Anopheles quadrimaculatus* and *A. aztecus*, M. Yoeli & H. Most; Survival of *Plasmodium berghei* in a bat, A. Corradetti, F. Verolini & M. Rostirolla; Transmission of *Haemaphysalis conchalis* sp. n. by *Culicoides sphagnumensis*, A. M. Fallis & G. F. Bennett; Transmission of *Nosema* parasite of larval trematodes by feeding to snails, W. W. Cort, K. L. Hussey & D. J. Ameal (2); Effect of ferret strain of *Toxoplasma* on mice, A. V. Levit (1), (2); Experimental infection of ticks with *Toxoplasma*, S. Szymanski; Transmission of *Pirhemocytus chamaeleonis*, A. Dodin & E. R. Brygoo (1); Transmission of *Besnoitia besnoiti*, J. W. Pals; Infection of chick embryos with *Tetrahymena*, J. C. Thompson, L. Santy & V. Clark (1); Latent infection of *Pneumocystis carinii* in rabbits, A. D. Mata; Mode of infection of new red cells by *Anaplasma*, M. Ristic (2); *Encephalitozoon* transmitted in the urine of infected mice, H. Iino (2); Transmission of parasite seen in leucocytes of *Chamaeleo lateralis*, A. Dodin & E. R. Brygoo (2).

**Carriers, reservoirs.**—Reservoir hosts of protozoal diseases, F. J. O'Rourke; Reservoir hosts of *Leishmania tropica* in Turkmenistan, M. B. Shekhanov & L. G. Suvorova; *Rattus rattus alexandrinus* as reservoir host for cutaneous leishmaniasis, J. E. Alencar, E. P. Pessoa & Z. F. Fontenele; Wild rodents as reservoir hosts of leishmaniasis in Brazil, O. P. Forattini (1); Search for reservoir hosts of *Trypanosoma evansi* in Kazakhstan, I. G. Galuzo & V. F. Novinskaja; Chickens as reservoir of infection of *Toxoplasma*, A. C. Kimball etc.; Reservoir hosts of toxoplasmosis, D. N. Sassuchin (1).

**Immunity, serology** [see also under PHYSIOLOGY].—

Haemagglutination test for *Entamoeba histolytica*, J. F. Kessel, W. P. Lewis & S. Ma; Comparison of antigens prepared in different ways from *Entamoeba histolytica* for complement fixation test, F. Fukuhara (1); Antigen preparation from *Entamoeba histolytica*, L. Magaúda-Borzi & L. Pennisi; Antigenic differences between *Entamoeba*, V. Zaman; Comparison of complement fixation, precipitation and immobilization tests for *Entamoeba histolytica*, F. Fukuhara (2); Techniques employed with microfluorimetry of amoeba stained with fluorescent antibody, M. Goldman; Bacterial antigens had no influence on specificity of entamoeba antigens, L. Magaúda-Borzi, L. Pennisi & B. Bertucci; Immune reaction of animals experimentally inoculated with *Entamoeba histolytica*, F. Fukuhara (3); Antigenic relationships of *Herpetomonas* and *Leptomonas*, Y. Becker; *Strigomonas oncopelti* antigen not suitable for diagnosis of Chagas disease by the complement fixation test, A. Berrios & R. Zeledón; *Herpetomonas muscarum* as a parasite of wild pig, J. A. Travassos Santos Dias (1); Electrophoretic patterns of laboratory animals infected with *Leishmania donovani*, R. N. Rossan; Immunity to *Trypanosoma*, R. S. Desowitz (4); Sabin-Feldman dye-test applied to trypanosome infections, S. Fujioka (1); Immune response of antelopes to trypanosome infection, R. S. Desowitz (2); Gel diffusion studies of trypanosomiasis, A. R. Gray; Antigenic mutations in *Trypanosoma equiperdum*, W. Cantrell; Reduction of immune response of mice to *Trypanosoma rhodesiense* by splenectomy and sodium salicylate, P. Healey, W. E. Ormerod & A. Rowcroft; Immuno-conglutinin level in animals infected with *Trypanosoma brucei*, D. G. Ingrams & M. A. Soltys; Soluble trypanosomal antigen in *T. brucei* infected rats, B. Weitz (2); Soluble protective antigen of *Trypanosoma brucei*, B. G. F. Weitz; Antigenic relationships between trypanosomes of *brucei* group, R. S. Desowitz (3); Antibodies in serum of guinea-pigs infected with *Trypanosoma gambiense*, M. Vauzel & H. Fromentin; Effect of o, m and p isomers of hydrobenzoic acid on immune response of rats to *Trypanosoma lewisi*, E. R. Becker; Protein and carbohydrate fractions of *Trypanosoma cruzi* in complement fixing, E. A. File Jr. & J. F. Kent; Formation of antibodies by hamsters and rats infected with *Trypanosoma cruzi*, M. Rubio & F. Knierim; Protection of mice against virulent *Trypanosoma cruzi* by previous infection with non-virulent *T. cruzi*, L. Norman & I. G. Kagan (2); Animal strains of *Trypanosoma cruzi* protect against virulent *T. cruzi*, L. Norman & I. G. Kagan (1); Antigenic relationships between *Trichomonas* parasitic in man, H. Kott & S. Adler; Trichomonad antigens, H. Chun-Hoon & R. Samuels; Serum protein changes of poult infected with *Histomonas*, M. J. Clarkson (1); Development of immunity to coccidiosis in chickens, E. E. Stuart; Delay of coccidial immunity by coccidiostats, W. M. Reid; Stimulation of immunity to *Eimeria nieschulzi* after injection of oocysts, E. J. Landers Jr.; Immunity in *Plasmodium* infections, A. Corradetti (1); Acquired immunity in *Plasmodium berghei*, A. Corradetti & F. Verolini; Immunity developed in mice by *Plasmodium berghei*, S. Prakash (2); Duration of immunity to *Plasmodium berghei* in rats, S. Prakash (1); Premunition in *Plasmodium relictum*, E. Sergeant (2); Auto-immune reaction to *Plasmodium lophurae* in ducklings, R. B. McGhee (2); *Toxoplasma* antigen prepared with ultrasonic waves, H. J. Körtling; Preparation of toxoplasmic antigen for complement fixation test, A. V. Levit (1), (2); Agglutination test for *Toxoplasma*, J. D. Fulton &

J. L. Turk; Flocculation test for *Toxoplasma*, J. C. Sim & K. Lind; Comparison of dye-test and complement fixation test for *Toxoplasma* using infected dogs, T. Koike (2); Comparison of haemagglutination and dye tests for toxoplasmosis, F. Knierim, G. Niedmann & E. Thiermann; *Toxoplasma* in tissue stained by fluorescent antibody, F. Dallenbach & G. Piekarski; The use of various dyes in the dye-test for *Toxoplasma*, C. Kulasiri (1);  $\gamma$ -Globulin fraction of rabbit serum contains the highest *Toxoplasma* antibody titre, C. Kulasiri (2); Studies of species specificity in the genus *Balantidium* using gel diffusion techniques, S. Krascheninnikov & E. Jeska; Deleterious effect of serum on *Balantidium coli* due to properdin, S. Fujioka (2); Detection of *Anaplasma* by fluorescent antibody, M. Ristic & F. H. White.

#### HOSTS

**General.**—Protozoa of animals from Netherlands New Guinea, D. Zwart (3); Influence of parasites on the ecological position of the host, C. N. Shuster Jr.; Gregarines of aquatic arthropods of Karelian lakes, G. A. Stein (1).

**Mammalia:** Protozoa causing disease in monkeys, G. L. Graham; Blood parasites of wild rats in Tunis, B. Juminer & J. A. Goudineau (2). List of coccidia parasites of silver-black fox in Zazakhstan, S. K. Svanbaev (2).

Coccidia from Bovidae, Cervidae & Camelidae, H. Prasad (2).

Malarial parasites and trypanosomes of mammals of Thailand, G. R. Coatney, R. E. Elbel & P. Kocharatana.

Haemosporidia including *Polychromophilus congolensis* sp. n. from Congolese bats, H. E. Krampitz & F. Anciaux de Faveaux.

Mammals, blood (San Salvador), haemoparasites observed, H. E. Krampitz.

*Anomalurus fraseri orientalis*, blood (Tanganyika), *Plasmodium anomaluri* sp. n. (Haemosporidia), G. Pringle.

Antelopes blood (Mozambique), *Trypanosoma* spp. (Mastigophora), J. A. Santos Dias Travassos (2).

Antelopes, rumen protozoa observed, C. Noirot-Timothee (1).

*Apodemus sylvaticus*, gut (England), *Eimeria sylvatica* sp. n. (Coccidia), H. Prasad (5).

*Arvicola terrestris*, gut, New and known species of coccidia from Azer baidjan, M. A. Musaev & A. M. Veisov.

Chinchilla, gut (captive, Scotland), *Giardia*, D. B. R. Poole.

*Citellus fulvus*, blood (Kazakhstan), incidence of *Trypanosoma spermophili*, V. F. Novinskaja & P. M. Butovskij.

*Citellus fulvus*, intestine (Kazakhstan); new host record for *Eimeria citelli*, *E. callo-spermophili*, *Isospora uralica* (Coccidia), S. K. Svanbaev (4).

*Clethrionomys rufocanus*, *C. rutilus*, brain (USSR), *Toxoplasma* (Sporozoa), D. N. Sassuchin, E. A. Shevkunova & B. E. Karulin.

*Coendon mexicanum laenatum*, blood (Costa Rica); *Trypanosoma cruzi* (Mastigophora), R. Zeledón, C. L. Perez & A. Berrios.

*Cricetomys gambianus*, gut (Nigeria), *Eimeria cricetomysi* sp. n. (Coccidia), H. Prasad (5).

*Cuniculus paca* (Brasil); *Leishmania* (Mastigophora), O. P. Forattini (1).

*Dasyprocta azuræ* (Brasil); *Leishmania* (Mastigophora), O. P. Forattini (1).

Dog, lung (Netherlands); *Pneumocystis carinii* (Sporozoa), S. van den Akker & E. Goedbloed.

Dogs, blood and brain (USA); incidence of *Toxoplasma*, C. L. Gibson & J. R. Junper.

*Elephas indicus*, caecum; *Thoracodinium voruz*, B. Latteur.

*Felis onca*, gut (captive USA); coccidia, B. J. Jaskoski & W. Krzeminski.

*Fennecus zerda* (captive, France); *Toxoplasma gondii* (Sporozoa), A. Vallée & P. Destombes.

*Helogale undulata rufula*, blood (Kenya); *Trypanosoma helogalei* sp. n. (Mastigophora), M. S. Grewal.

*Hesperomys*, blood (San Salvador); *Trypanosoma birabeni* sp. n. (Mastigophora) M. E. Jong.

*Hippopotamus*, blood (Uganda), *Trypanosoma* sp. (Mastigophora), P. C. C. Garnham (1).

*Hylarnus batesi rumen* (Cameroon); *Diplodinium moucheti* sp. n. C. Noirot-Timothee (2).

*Kannabateomys amblyonyx* (Brasil); *Leishmania* (Mastigophora), O. P. Forattini (1).

*Lagotrix lagotricha*, blood (Colombia); *Plasmodium brasilianum* (Haemosporidia), P. C. C. Garnham (3).

*Lepus europeus*, blood (Italy), *Babesia leporina* sp. n. (Haemosporidia), B. Baldelli.

*Macropus refusi*, gut (captive, England); *Eimeria rufusi* sp. n., *E. macropodis* (Coccidia), H. Prasad (1).

*Meles meles*, blood (Kazakhstan); *Piroplasma meles* sp. n. (Haemosporidia) A. M. Krivkova.

*Meriones erythraurus*, intestine (Kazakhstan); *Trichomonas muris* var. n. *meriones* (Mastigophora), S. M. Pak (1).

*Meriones shawi shawi*, gut (Egypt); *Eimeria egypti* sp. n. *Isospora egypti* sp. n. (Coccidia), H. Prasad (5).

*Microtus pennsylvanicus*, caecum (USA); *Eimeria wenrichi* sp. n. *Isospora mcdowelli* sp. n. and *Canyospora microti* sp. n., L. H. Saxe, N. D. Levine & V. Ivens.

*Microtus torques*, lung (Perú), *Besnoitia* (Sporozoa?), W. L. Jellison, L. Glesne & R. S. Peterson.

*Mustela vison*, gut (Britain); *Eimeria vison* and *Isospora aidlavi*, H. S. McTaggart.



*Myocastor coypus*, gut (England); *Eimeria myocastori*, *E. nutriae* spp. n. (Coccidia), H. Prasad (4).

*Panthero leo*, blood (Uganda); *Trypanosoma congolense* (Protomonadina), J. R. Baker (4).

*Panthera pardus*, blood (Uganda); *Trypanosoma congolense* (Protomonadina), J. R. Baker (4).

*Peromyscus leucopus*, gut (USA); *Eimeria arizonensis*, *E. roundabushi* sp. n. *Tyzzeria peromysci* sp. n. N. D. Levine & V. Ivens.

*Peromyscus maniculatus*, gut (USA); *Eimeria delicata* sp. n. *E. arizonensis*, *Tyzzeria peromysci* sp. n. N. D. Levine & V. Ivens.

Rabbits (Mexico); latent infections of *Pneumocystis carinii*, A. D. Mata.

*Rattus rattus alexandrinus*, blood (Brazil); *Leishmania* (Mastigophora), J. E. Alencar, E. P. Pessoa & Z. F. Fontenele.

*Sciurus (Neosciurus) carolinensis*, gut (England); *Eimeria neosciuri* (Coccid.), H. Prasad (3); J. M. Webster.

*Tatera*, blood (Congo); *Trypanosoma cruzi* (Mastigophora), J. Jadin etc.

*Taurotragus oryx oryx*, blood (Kenya); *Cytauxzoon taurotragui* sp. n., H. Martin & D. W. Brooklesby.

#### Aves:

Birds in Canada infected with haematozoa, G. F. Bennett & A. M. Fallis.

*Haemoproteus* and *Leucocytozoon* from birds of Thailand, G. R. Coatsney, R. E. Elbel & P. Kocharatana.

Blood protozoa of Polish birds, A. Ramisz.

Birds, blood (USA); infections of *Plasmodium Haemoproteus*, *Leucocytozoon*, (Haemosporidia) and *Trypanosoma* (Mastigophora), J. N. Farmer.

*Bonasa umbellus*, blood (USA); incidence of *Haemoproteus*, *Leucocytozoon* *Plasmodium* (Haemosporidia) and *Trypanosoma* (Mastigophora), R. S. Dorney & A. C. Todd.

*Canachites canadensis*, blood (Canada); *Haemoproteus canachites* sp. n. (Haemosporidia), A. M. Fallis & G. F. Bennett.

*Chalcites lucidus lucidus*, blood (Solomon Islands); *Plasmodium relictum* (Haemosporidia), M. Laird (2).

*Corvus cornix*, blood (Italy); *Plasmodium elongatum* (Haemosporidia), A. Corradetti & A. Ilardi.

*Myiagra ferrocyanea ferrocyanea*, blood (Solomon Islands); *Plasmodium relictum* (Haemosporidia), M. Laird (2).

*Pica nuttalli*, blood (USA); incidence of blood parasites, G. W. Clark.

*Pica pica hudsonia*, blood (USA); incidence of blood parasites, R. A. Heckman & G. W. Clark.

*Turdus iliacus*, blood (Italy); *Plasmodium matutinum* (Haemosporidia), A. Corradetti, I. Neri & M. Scarga.

Waxbill (captive, Netherlands); *Trichomonas gallinae* (Mastigophora), P. Zwart.

Zebra finches (captive Netherlands); *Trichomonas gallinae* (Mastigophora), P. Zwart.

#### Reptilia:

*Chamaeleo fischeri taveanus*, blood (Tanganyika), *Haemamoeba acuminata* (Haemosporidia), G. Pringle.

*Coluber ravergeri nummifer*, gut (Israel); *Caryospora zuckermanae* sp. n. (Coccidia), R. S. Bray (2).

*Constrictor constrictor*, cloaca (captive); *Retortomonas boae* sp. n. (Mastigophora), J. Kulda.

*Draco volans*, blood (Malaya); *Plasmodium castor* sp. n. (Haemosporidia), M. Laird (3).

*Eremias guttulatus olivieri*, blood (Morocco); *Pirhemocytion eremiosi* sp. n., G. Blanc & L. Ascione.

*Gonycephalus bornicensis*, blood (Malaya); *Plasmodium minasense* (Haemosporidia) M. Laird (3).

*Psammophis sibilans phillipsi*, gut (Liberia); *Caryospora* spp. n. (Coccidia), R. S. Bray (2).

#### Amphibia:

Parasitic protozoa of Anura from Kaliningrad, M. N. Golikova (1).

Protozoa observed in amphibia from California, D. L. Lehmann (2).

Protozoa observed in amphibia of Utah, U.S.A. J. C. Frandsen & A. W. Grundmann.

*Bufo luetkeni*, intestine (Costa Rica); *Trichomonas batrachorum* (Mastigophora), A. Ruiz (1).

*Bufo marinus*, intestine (Costa Rica); *Trichomonas batrachorum* (Mastigophora), A. Ruiz (1).

*Notophthalmus viridescens*, intestine (USA); *Eimeria megaresidua*, *E. longaspora* (Coccidia), J. H. Barrow Jr. & J. B. Hoy.

*Rana aurora aurora*, blood (USA); *Haemogregarina aurorae* sp. n. (Coccidia), D. L. Lehmann (1).

*Triturus vulgaris*, skin (Czechoslovakia); *Nosema tritoni* sp. n. (Microsporidia), J. Weiser.

#### Pisces:

Skin infections in fishes (popular account), A. Bartsch.

African freshwater fish (Uganda); records of trypanosomes and "piroplasms", J. R. Baker (5).

African freshwater fish: *Trypanosoma mukasai* (Mastigophora) and *Dactylosoma mariae* (Haemosporid), J. R. Baker (1).

Parasites of freshwater fish from USSR, O. N. Bauer.

Protozoa from fish caught in Kaliningrad, USSR, M. N. Golikova (2).

Fishes of Kazakhstan rivers: incidence of protozoal infections, A. I. Agapova, A. P. Maksimova, E. G. Sidorov & O. V. Dobrokhotova.



Marine fish (Red Sea); incidence of protozoan parasites, D. C. Saunders.

Czechoslovakian fishes: *Trichodina aomerguei*, *f. latipinna* (Ciliata) on skin of *Gasterosteus aculeatus*, *Cyprinus carpio*, *Percfluviatilis*, *Lucioperca lucioperca*, *Leucaspia delincaus*; *T. domerguei f. magna* on *Tinca tinca*, *Nemachilus barbatulus*; *T. domerguei f. esocis* on *Esox lucius*; *T. ingra sp. n.* on *Cyprinus carpio*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Abramis brama*, *Perca fluviatilis*, *Tinca tinca*, *Alburnus alburnus* *Leuciscus cephalus*; *T. ingra f. gobi f. n.* on skin of *Gobio gobio*; *T. nigra f. cobitis f. n.* on gills of *Cobitis taenia*; *T. nigra f. nemachili f. n.* on gills of *Nemachilus barbatulus*, J. Lom (3).

*Aphanopus carbo*, gall bladder (Scotland); *Ceratomyxa tenuispora sp. n.* (Myxosporidia) Z. Kabata (2).

*Cyprinus carpio*, intestine; *Eimeria subepithelialis* (Coccidia), M. Marínček.

*Gasterosteus aculeatus*, skin (laboratory bred); *Glugea* (Microsporidia), H. Swarup.

*Phoxinus phoxinus* (Czechoslovakia) and *Nemachilus barbatulus*, skin: *Trichodina janovici* and *T. intermedia spp. n.* (Ciliata), J. Lom (4).

Whitefish, muscle (Norway); *Henneguya zschokkei* (Myxosporidia), R. Vik.

*Zengopterus punctatus*, muscle (Scotland); *Kudoa clupeiidae* (Myxosporidia), Z. Kabata (2).

#### Insecta:

Apterygota; host list for cephaline gregarines including *Colepismatophila burti sp. n.*, *C. buckleyi sp. n.* and *Lepismatophila orientalis sp. n.*, H. Cruz.

*Akis acuminata* (Spain); *Sphaerorhynchus ophioides* (Gregarinida), J. Théodorides (2).

*Aletia oxygala linteopallens*, midgut (Canada); *Plistophora sp.* (Microsporidia), H. M. Thomson & W. Smirnov.

*Apis mellifica* intestine (Italy); *Lophomonas* (Hypermastigida), A. Vecchi.

*Archips cerasivorana* (Canada); *Nosema cerasivoranae sp. n.* (Microsporidia), H. M. Thomson.

*Blaps lusitanica* (France); *Stylocephalus sp.* (Gregarinida), J. Théodorides (1).

*Blaps sulcata brachyura* (Spain); *Stylocephalus sp.* (Gregarinida), J. Théodorides (2).

*Chironomus plumosus* larvae; *Tetrahymena paratitica*, D. Barthelmes.

*Compsolacoa crenicollis* (France); *Ancyrophora stelliformis* (Gregarinida), J. Théodorides (1).

*Dendarus tristis* (France); *Gregarina cavalierina* (Gregarinida), J. Théodorides (1).

*Gerris dissortis*, gut (USA); *Leptomonas collosoma sp. n.* (Mastigophora), F. G. Wallace etc.

*Gerris remigis* gut (USA); *Crithidia flexonema sp. n.* (Mastigophora), F. G. Wallace etc.

*Morica hybrida* (Spain); *Sphaerorhynchus ophioides* (Gregarinida), *Adelina akidium* (Coccidia), J. Théodorides (2).

*Musca domestica*, gut (Brasil), incidence of flies carrying human intestinal protozoa, J. O. Continho, A. de E. Taunay & L. P. de Carvalho Lima.

*Operophtera brumata*, silk glands (England); *Plistophora operophterae sp. n.* and *Nosema operophterae sp. n.* (Microsporidia) E. U. Canning.

*Otiorrhynchus meridionalis* (France); *Gregarina munieri* (Gregarinida), J. Théodorides (1).

*Timarcha nicaeensis* (France); *Gregarina munieri* (Gregarinida), J. Théodorides (1).

*Triatoma protracta*, intestine (USA); *Trypanosoma cruzi* (Mastigophora), S. F. Wood, E. D. Mitchell & M. J. Brenton.

#### Myriapoda:

Millipedes (India); infected with cephaline gregarines, S. S. Rodgi & G. H. Ball.

*Mecistocephalus punctifrons*, gut (India); *Mecistophora legeri* gen. n. sp. n. (Gregarinida), P. N. Ganapati & C. C. Narasimhamurti (1).

*Rhysida longipes*, gut (India); *Adelea hyalospora sp. n.* (Coccidia), C. C. Narasimhamurti.

*Schizophyllum sabulosum* (France); *Stenophora iuli* (Gregarinida), L. Théodorides (1).

*Stigmatogaster gracilis provincialis* (France); *Rhopalonia geophili* (Gregarinida), J. Théodorides (1).

*Thyroglytus sp.*, intestine (India); *Stenophora thyroglyti sp. n.* (Gregarinida), P. N. Ganapati & C. C. Narasimhamurti (3).

*Xenobolus carnifex*, gut (India); *Nephridiophaga xenoboli sp. n.* (Haplosporidin), P. N. Ganapati & C. C. Narasimhamurti (2).

#### Arachnida:

*Crithidia hyalommae* in Acarina of Tadzhikistan, Russia, E. A. Muratov & E. M. Chessin.

*Opilio parietinus*, haemolymph (Czechoslovakia); *Stempellia weiseri sp. n.*, V. Šilhavý.

#### Crustacea:

Gregarines found in Crustacea from the Barents Sea, A. V. Ouspenskaia.

Peritrichida on Cladocera and Copepoda, A. Geus (1).

*Euphansia krohni*, carapace (Mediterranean) *Amalocystis* (Ellobiosidae), Y. Dion & H. Nouvel.

*Lepidurus apus*, connective tissue (Czechoslovakia), *Nosema lepiduri sp. n.*, J. Vavra (3).

Apostamatida on *Palaemon varians*, P. Debaisieux.

#### Echinodermata.

*Strongylocentrotus echinoides*, gut (USA); entocommensal holotrich ciliates, J. Berger (3).

*Strongylocentrotus* spp. gut (Northeast Pacific); ciliates observed, J. Berger (1).

#### Mollusca:

Ciliates from freshwater lamellibranchs, J. Dobrzańska.

Land snails (Czechoslovakia); protozoa observed, Z. Zdárská.

*Campeloma geniculum*, gut; *Ptychostomum campelomae* sp. n., E. N. Kozloff.

*Pisidium casertanum* (Poland); *Hypocmatidium sphaerii*, *Chilodonella uncinata*, *Tetrahymena pyriformis*, *Desmophrya contorta*, *Tetrahymena limacis*, *P. obtusale* (Poland); *H. sphaerii*, *C. uncinata*, *T. pyriformis*, *Cinetochilum margaritaceum*, *Conchophthirus discophorus*, *T. hinacia*, *Desmophrya contorta*, J. Dobrzańska.

*Semitrachodina* (gen. n.) *sphaeronuclea* (Peritrichida) in *Schistophallus orientalis* (Pulmonata), S. L. Kazubski (1).

Snails, digestive gland (USA); *Haplosporidium* (Sporozoa), J. H. Barrow Jr.

*Sphaerium lacustrae* (Poland); *Hypocmatidium sphaerii*, *Chilodonella uncinata*, *Tetrahymena limacis*, *Conchophthirus discophorus*, *S. corneum* (Poland); *H. sphaerii*, *C. discophorus*; *T. pyriformis*, J. Dobrzańska.

*Thigmocoma acuminata* gen. n., sp. n., in kidney of *Schistophallus orientalis* (Pulmonata), S. L. Kazubski (2).

#### Annelida:

*Criodrilus lacuum* and *C. ochridensis*; *Cortisiella* gen. n. *criodrilus* n. comp. (Astomatida), P. de Puytorac (3).

*Ilyodrilus ochridanus* gut; *Intoshillina ochridanus* sp. n. (Astomateda), P. de Puytorac (3).

*Mesnilella bohemia* sp. n. from gut of *Nais* sp., J. Lom (1).

*Ophryotrocha puerilis* (Italy); *Eucoccidium ophryotrocha* sp. n. (Coccidia), K. G. Grell (1).

*Pheretima rodericensis* gut; *Manpasella vacuolata* sp. n., J. Lom (1).

*Tubifex tubifex*; *Triactinomyxa ignotum* (Actinomyxida), T. G. N. Dresscher & A. J. J. Gispen van der Weg.

#### Platyhelminthes:

*Fonticola ochridana*, gut (France); *Monocystella arndti* (Gregarinida), P. de Puytorac & J. Grain.

*Neodendrocoelium sancti-naumi*, gut (France); *Monocystella neodendrocoeli*, P. de Puytorac & J. Grain.

Sporozoan (Haplosporidia?), parasite of *Schistosoma bovis*, A. Buttner & T. M. Salinesi.

#### Coelenterata:

*Craspedacusta sowerbii*, surface of medusa (USA), *Hydramoeba hydrozena*, N. E. Rice.

#### Protozoa:

Organisms infecting *Amoeba proteus*, L. E. Roth & E. W. Daniels.

#### Miscellaneous:

*Microcosmos sulcatus*, liver epithelium; *Grassstella microcosmi* gen. n. sp. n., O. Tuzet & R. Ormieres.

#### ECONOMICS

#### General:

Articles on various Protozoa, H. Frey; Discoloured water off Florida, R. F. Hutton; New dinoflagellate producing red water, Y. Halim (2); Dinoflagellate bloom and fish death in Japan, T. Ito & T. Iwai (2); Toxin from *Gonyaulax catenella*, J. M. Burke et al.; Toxin from *Prymnesium parvum*, M. Shilo & R. F. Rosenberger; *Paramecium* bloom and fish deaths, Japan, T. Ito & T. Iwai (3).

Sewage protozoa.—Influence of protozoa in natural purification of sewage, S. C. Pillai etc.

Protozoa in relation to disease.—(see also under Parasitism).

General.—Effect of pH on recovery of protozoan cysts in the ether sedimentation technique, L. S. Ritchie etc.; House flies not important vectors of human intestinal protozoa, J. O. Continho, A. de E. Taunay & L. P. de Carvalho Lima; Human diseases caused by protozoa, M. Yoeli; Survival of human intestinal protozoa and *Trichomonas vaginalis* in diluted faeces, D. Sibalić; Incidence of intestinal protozoa in schoolchildren of Rofrano, Italy, M. Ricci; Human parasitic protozoa in Italy, E. Lipparoni, D. Mura & M. Altieri; Incidence of intestinal protozoa of Albanian infants, B. Erhardová etc.; Diseases caused by protozoa in Bulgaria, P. Pawlow; Incidence of intestinal protozoa in schoolchildren in Yugoslavia, C. Simić etc.; Distribution of human protozoan parasites in Near and Middle East, E. P. Mumford; Current research on protozoal diseases in China, O. Jirovec & O. Havlik; Incidence of intestinal protozoa in East Pakistan, R. E. Kuntz; Review of protozoan diseases in Guinea, A. S. Khromov & S. P. Fedorova; Incidence of parasitic protozoa in Nigerians, S. G. Cowper & S. F. Woodward; Incidence of intestinal protozoa in mental hospital patients in South Carolina, U.S.A., G. M. Jefferey (1); Incidence of intestinal protozoa in California, U.S.A., R. L. Brown & M. J. Garber; Incidence of intestinal protozoa in Mexico, J. T. Zabala & F. Navarrete; Incidence of intestinal protozoa in Panama, G. E. Cosgrove; Parasitic protozoa in Venezuela, T. B. Maaz; Incidence of intestinal parasites in Colombia with comparison of techniques, D. Botero & M. Restrepo; Zoonoses, F. J. O'Rourke; Zoonoses in Turkey caused by protozoa, S. Yasarol; Discussion on anthroponozoonoses, S. Tarcański & Z. Kozar; Protozoa causing disease in monkeys, G. L. Graham; Pathogenic effects of parasitic protozoa on mosquito larvae, M. Laird (1); Haemosporean parasites of domestic animals in Azerbaidjan, N. S. Abusalimov; Incidence of intestinal protozoa in man and pigs of Kazakhstan, R. N. Appasov (1); Protozoa of domestic animals in Netherlands New-Guinea, D. Zwart (3); Protozoan diseases of domestic buffalo in Congo, G. Lambelin etc.

**Amoebiasis:**

Review of recent research in amoebiasis, R. **Eldon-Dew**.

Review of host-parasite relations in amoebiasis, C. A. **Hoare** (3).

Biological basis of prophylaxis of *E. histolytica*, I. de **Carneri** (2).

Method for killing *Entamoeba histolytica* cysts on lettuce, P. H. van **Thiel**, etc.

Gallego's stain used for identification of *Entamoeba histolytica* in tissue sections, T. **Pizzi**.

Temporary stains for intestinal protozoa, M. P. **Barretto** and H. **Zago Filho**.

Relative value of methods used to discover *Entamoeba histolytica* infections, T. **Pizzi** & R. **Silva**.

Comparison of techniques for detection of intestinal protozoa in faeces, I. **Oellerman**, E. **Hennessy** & R. **Eldon-Dew**.

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Incidence of large and small race of *Entamoeba histolytica* in U.S.A., J. G. **Shaffer**, etc.

Incidence of *Entamoeba histolytica* in prisoners in Honduras, M. M. **Shapiro**.

Presence of large and small race of *Entamoeba histolytica* in Brasil. M. P. **Barretto**, H. **Zago Filho** & G. **Alvelina Silva**.

Incidence of *Entamoeba histolytica* in Japanese school children, M. **Nagahana** & K. **Ishigami**.

Antigenic variation of *Entamoeba histolytica* strains, V. **Zaman**.

Haemagglutination test for *Entamoeba histolytica*, J. F. **Kessel**, W. P. **Lewis** & S. **Ma**.

Consideration of pathogenicity and transmission of *Dientamoeba fragilis*, L. **Lamy** (2).

**Leishmaniasis:**

Intradermal test for leishmaniasis using *Strigomonas* as antigen, R. **Zeledón**, W. **Hidalgo** & H. X. de **Hidalgo**.

Natural foci of cutaneous leishmaniasis in Turkmenistan, M. B. **Shekhanov** & L. G. **Suvorova**.

Leishmaniasis in Italy, A. **Corradetti** (2).

Cutaneous leishmaniasis in Italy, L. **Martinotti**.

Canine and human infections with *Leishmania* in Italy, E. **Tasselli** & G. **Colella**.

Incidence of kala-azar in Portugal and diagnostic technique, J. **Fraga de Azevedo**.

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Kala-azar in China, F. **Hertwig** & F. **Oberdoester**.

Transmission of leishmaniasis by *Phlebotomus* in the Neotropical Region, O. P. **Forattini** (2).

*Leishmania brasiliensis* represents a series of species, varieties or races of widely different biological properties, F. **Pifano**.

Dog infected with *Leishmania*, filaria and cestodes. B. **Juminer** & M. **Durand**.

**Trypanosomiasis:**

Evolution of human trypanosomiasis, C. A. **Hoare** (1).

Control of trypanosomiasis in Rhodesia and Nyasaland, K. W. **Aspinall**, etc.

Control of trypanosomiasis in S. Rhodesia, G. F. **Cockbill**.

Epidemiology of trypanosomiasis in East Africa, K. R. S. **Morris** (4).

Sleeping sickness in Kenya, K. R. S. **Morris** (2).

Eradication of trypanosomiasis in West Africa. K. R. S. **Morris** (1).

Recent outbreaks of human trypanosomiasis in Ghana, D. **Scott**.

Relationship between cell inclusions and recent spread of sleeping sickness caused by *Trypanosoma rhodesiense*, W. E. **Ormerod**.

Relationship of trehalose to infectivity in *Trypanosoma gambiense* and *T. rhodesiense*, D. **Weinman** (1).

Prolonged incubation period with *Trypanosoma gambiense*, L. **Lapeyssonnie**.

Transmission and spread of *T. gambiense* infections in Uganda, K. R. S. **Morris** (3).

Detection of trypanosomes by cultivation from suspected cases of sleeping sickness, D. **Weinman** (2).

Immunity in trypanosomiasis, R. S. **Desowitz** (4).

Use of complement fixation technique in the study of sleeping sickness, R. **Pautrizel**, P. **Mattern** & J. **Duret**.

Gel diffusion studies of trypanosomiasis, A. R. **Gray**.

Use of Sabin-Feldman dye-test adapted to *Trypanosoma cruzi* infections, J. V. **Scorza**, etc.

Complement fixation test for *Trypanosoma cruzi*, G. A. **Maekelt** (2).

The technique of xenodiagnosis for *Trypanosoma cruzi*, I. I. **Silva** (1).

Study of protein and carbohydrate fractions of *Trypanosoma cruzi* in complement fixing, E. H. File, Jr., & J. F. Kent.

Trans-placental transmission of *Trypanosoma cruzi*, A. C. Lisboa.

Review of Chagas disease in Costa Rica, R. Zeledón (5).

*Triatoma* infected with *Trypanosoma cruzi* on Aruba, G. Gaikhorst.

Incidence of *Trypanosoma cruzi* infection in Argentina, R. A. Torrico.

Distribution of Chagas disease in Venezuela, G. A. Mackelt (1).

Incidence of *Trypanosoma cruzi* in Chile, W. Apt, O. Diaz & C. Ramos.

*Triatoma sanguisuga* found in Louisiana naturally infected with *Trypanosoma cruzi*, R. G. Yaeger & A. A. Bacigalupo.

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Effect of trypanosomiasis on man and domestic animals in Uganda, W. Deshler.

Incidence of trypanosomiasis in wild and domestic animals in Mocambique, R. C. S. Machado.

#### Trichomoniasis:

Review of the economic importance of intestinal trichomoniasis, J. G. Basnuevo & A. Kouri (2).

Epidemiology of *Trichomonas vaginalis*, G. Chappaz.

Male trichomoniasis due to repeated re-infections, K. Ohmura.

Incidence of *Trichomonas vaginalis* in Japanese men, K. Ohmura.

Incidence of *Trichomonas vaginalis* in Poland, W. Kucharczyk, J. Przesmycki & J. Zawadzki (1).

Incidence of *Trichomonas vaginalis* in Detroit, U.S.A., S. Herbst, B. Olszewski & P. E. Thompson.

Incidence of *Trichomonas vaginalis* in Lithuania, J. Macevičiene.

Fluorescent antibody technique and cultivation the best methods for detecting *Trichomonas vaginalis*, B. S. Hayes & E. Kotcher.

*Trichomonas gallinae* in chickens in Australia, R. Rae & I. Hreczko.

Differentiation of trichomoniasis from pox in doves, L. N. Locke, C. M. Herman & E. S. King, Jr.

Incidence of pig trichomonads, C. P. Hibler, etc.

Research on the problem of bovine trichomoniasis, *Trichomonas foetus*, in Poland, J. Gatuska (1).

Reappearance of *Trichomonas foetus* in dairy cattle in England, R. B. Wood, D. W. Deas & J. D. Peele.

#### Other Mastigophora:

Quantities of flagellates in Dutch oyster beds, A. C. Drinkwaard.

Serum protein changes during *Histomonas* infections in turkey poults, M. J. Clarkson (1).

Review of the economic importance of *Chilomastix mesnili*, J. G. Basnuevo and A. Kouri (1).

Death of chinchillas due to *Giardia*, D. B. R. Poole.

Incidence of *Giardia intestinalis* in Poland, J. Sajewicz.

Incidence of *Giardia intestinalis* in school children in Albania, B. Rosický.

Penetration of duodenal wall by *Giardia*, N. A. Dekkhan-Khodzhaeva.

Association of *Giardia lamblia* with diarrhoea in man, F. J. Payne, etc.

*Giardia* in a Christmas pudding, D. A. Conroy (2).

#### Coccidiosis:

Relationship of life-cycle of coccidia with control of disease, C. Horton-Smith.

Coccidiosis in carp, V. E. Sayka & E. M. Cheissin.

Incidence of coccidiosis in sheep and cattle of Kazakhstan, S. K. Svanbaev (1).

Incidence of coccidiosis in Egyptian sheep, H. Zaki.

Incidence and spread of coccidiosis in chickens in Lithuania, B. Balčiūnas.

Incidence of coccidiosis in chicken in Germany, G. Schoop & J. Lamina.

Pig coccidiosis in Austria, E. Kutzer.

Incidence of coccidia in Turkish dogs, M. Mimioglu, N. Güralp & F. Sayin.

Survival of coccidial oocysts under natural conditions, Z. M. Kogan (1).

Development of immunity to coccidiosis in chickens, E. E. Stuart.

Inhibition of development of coccidial immunity by coccidiostats, W. M. Reid.

Human infection with *Isospora belli*, L. A. Robin & Fondimare.

Incidence and host-parasite relationship of *Isospora belli* in Chile, A. Jarpa, etc.

*Isospora belli* in Brazil, A. M. Ribeiro & F. S. Barbosa.

*Isospora* oocysts observed in cattle faeces actually a sparrow parasite and not a separate species, N. D. Levine & R. N. Mohan.

Oocyst production by bovine species of *Eimeria*, W. C. Marguardt.

Description of known *Eimeria* and *Isospora* and incidence in foxes bred in farms of Kazakhstan, S. K. Svanbaev (2).

Chickens *Eimeria* spp. found on farms in Maine, U.S.A., H. L. Chute, etc.

Pathogenicity of ovine *Eimeria*, W. N. Smith, L. R. Davis & G. W. Bowman.

Vitamin K decreases mortality and morbidity of chicks infected with *Eimeria tenella*, R. H. Harms, P. W. Waldroup & D. D. Cox.

Method for producing *Eimeria tenella* oocysts, J. L. Gardiner & D. K. McLoughlin.

Technique of obtaining *Eimeria tenella* oocysts, J. L. Gardiner & D. K. McLoughlin.

Description of lesions produced by *Eimeria adenoides*, *E. meleagridis* and *E. meleagridis* in turkeys, M. J. Clarkson (2).

Incidence of *Eimeria zürni* in cattle in Spain, M. Cordero del Campillo, J. Fernández González M. Cordero del Campillo.

Detection of sublethal infections of *Eimeria tenella* and *Eimeria necatrix* by haematological methods, L. P. Joyner & S. F. M. Davies.

Effect of sulphonamides on total numbers, sporulation and morphology of oocysts of *Eimeria necatrix*, Z. M. Kogan (2).

#### Malaria:

Persistence of malaria transmission with insecticide spraying, C. C. Draper & A. Smith.

Spread of malaria in New Guinea, W. Peters & S. H. Christian.

Relapses of malaria, A. Corradetti.

Incidence of *Plasmodium* and sickling in Nigeria, J. P. Garlick.

Epidemiology of malaria in Thüringen, H. W. Baer.

Incidence of *Plasmodium* sp. in Chad, H. Galliard & H. T. Sang.

Incidence of *Plasmodium* in New Guinea, D. Metselaar; W. Peters & S. H. Christian; W. Peters.

Transmission and duration of *Plasmodium* infections in man, G. Covell.

*Plasmodium falciparum* in a Nigerian boxer, P. G. Shute & M. Maryon (1).

Protection of infants by maternal antibodies against malaria, K. Holemans.

Transmission of vivax-type malaria from macaques to man, D. E. Eyles, G. R. Coatney & M. E. Getz.

Transmission of *Plasmodium falciparum* and *P. malariae* following a blood transfusion, P. G. Shute & M. Maryon (1).

Measurement of malaria transmission, G. Fringle, C. C. Draper & D. F. Clyde.

Transmission of malaria in New Guinea, W. Peters & H. A. Standfast.

*Anopheles gambiae* more susceptible to *Plasmodium falciparum* than *A. melas*, R. W. Burgess.

VOL 97

#### Piroplasmosis:

Control of piroplasmosis by tick eradication in Dutch New Guinea, D. Zwart (2).

*Babesia* and *Anaplasma* observed in Dutch New Guinea, D. Zwart (1).

Distribution of *Babesia* and its vectors in Horyń district, Belorussia, M. I. Dilko.

Brain infection of Venezuelan cattle by *Babesia argentina*, G. Dumith Arteaga.

*Babesia ovis* in sheep and goats in Venezuela, F. Vergani.

Tissue reactions in *Theileria parva* infections, S. F. Barnett.

*Theileria lawrencei* in Kenya, S. F. Barnett & D. W. Brocklesby.

#### Other Sporozoa:

Economic effects of sporozoal infections in fish, Z. Kabata (1).

Effect of naturally transmitted *Leucocytozoon simondi* on White Pekin and Muscovy ducks, N. T. Briggs.

Incidence of *Henneguya zschokkei* in whitefish caught in Norway, R. Vik.

*Pneumocystis* as a human parasite, O. Jirovec & J. Vanek.

*Pneumocystis* in a dog, S. van der Akker & E. Goedbloed.

*Globidium* infections in Sudan, K. N. Soliman.

Economic importance of *Besnoitia besnoiti*, J. W. Pols.

*Sarcosporidia* in horses in Poland, E. Dziliński.

*Sarcosporidiasis* in Congo, E. Thils, J. Deom & P. Fagard.

#### Ciliates:

Correlation of incidence of balantidiosis in man and pigs of Kazakhstan, R. N. Appasov (1).

*Balantidium coli* in pigs and man in France, M. Larivière, etc.

Tissue penetration by *Balantidium*, A. Żygas.

Ichthyophthiriasis of eel in Belorussia, S. V. Kakhnenka, E. A. Baravik & S. L. Garavaya.

#### Toxoplasmosis:

Biology of *Toxoplasma*, D. N. Sassuchin (2).

Comparison of dye-test and complement fixation test for detection of *Toxoplasma* antibodies in man, L. Schmidtke & H. Möbest.

Toxoplasmosis in the USSR., D. N. Sassuchin.

Epidemiology of toxoplasmosis, D. N. Sassuchin (1).



Review of parasitology, epidemiology and diagnosis of toxoplasmosis, M. Domínguez Carmona.

Toxoplasmosis in obstetrics, Z. Kozar (2).

Correlation between *Toxoplasma* and abnormal fetuses, L. Pytel, Z. Dymowski & D. Kłowska.

Survival of *Toxoplasma* stored at 4°C, S. G. Vasina & Z. V. Dunaeva.

Survival of *Toxoplasma* cysts, L. Jacobs, J. S. Remington & M. L. Melton (1).

Evidence for chickens as source of infection of *Toxoplasma*, A. C. Kimball, etc.

*Toxoplasma* in erythrocytes of chick embryo, G. Piekarski.

*Toxoplasma* isolated from a dog in the Netherlands, S. van der Akker, P. H. Bool & W. C. Spitseshuis.

Acute toxoplasmosis in marmoset, K. Benirschke & R. Richart.

Isolation of *Toxoplasma* from Sahara fox, A. Vallée & P. Destombes.

Strain of *Toxoplasma* isolated from ferret in Kazakhstan, A. V. Levit (1), (2).

Isolation of *Toxoplasma* from pigs, cattle and sheep, L. Jacobs, J. S. Remington & M. L. Melton (2).

Current Polish research on toxoplasmosis, J. Gałuszka, M. Skorzynski & J. Szafiarski.

Statistical analysis of data on incidence of toxoplasmosis in Poland, A. Bartoszewski, etc.

Incidence of canine toxoplasmosis in Cracow, Poland, J. Gałuszka, etc.

Toxoplasmosis in domestic animals in Denmark, T. Møller.

Canine toxoplasmosis in France, P. L. Quittet.

Survey of toxoplasmosis in Lebanon by skin test, K. A. Daoud & C. W. Schwabe.

Incidence of toxoplasmosis in Colombia, G. Muñoz-Rivas.

Incidence of toxoplasmosis in dog of U.S.A., C. L. Gibson & J. R. Jumper.

Incidence of toxoplasmosis in Mexico, G. Varela, E. Rech & A. Curbelo.

Relative value of serological and skin tests for toxoplasmosis, H. J. Kabelitz.

Value of serological tests in the diagnosis of human toxoplasmosis, F. Bergamoschi.

Comparison of haemagglutination and dye tests for toxoplasmosis, F. Knierim, G. Niedmann & E. Thiermann.

Flocculation test for *Toxoplasma*, J. C. Sim & K. Lind.

The haemagglutination test for toxoplasmosis, B. Angelillo & A. Mandras.

Agglutination test for *Toxoplasma*, J. D. Fulton & J. L. Turk.

Comparison of toxoplasmin reaction and dye-test for toxoplasmosis, T. Koike, H. Ueda & J. Yamato.

Toxoplasmin test in the diagnosis of toxoplasmosis, O. Jirovec & J. Jira.

Occurrence and persistence of complement fixing antibodies of *Toxoplasma* in man, J. Jira & V. Bozděch.

Use of complement fixation for toxoplasmosis in Costa Rica, A. Berrios.

*Toxoplasma* antigen prepared by ultrasonic waves, H. J. Körting.

Properties of toxin from *Toxoplasma*, H. C. Woodworth & D. Weinman II.

#### Protista Incertae Sedis:

Premunition of cattle by *Anaplasma centrale* in Venezuela, C. E. León Rivas.

Detection of *Anaplasma* by fluorescent antibody, M. Ristic & F. H. White.

*Anaplasma marginale* in Belorussia, USSR, P. S. Ivanova.

Latent infections of *Anaplasma marginale*, J. F. Christensen, etc.

*Pneumocystis pneumonia* in U.S.A., J. E. McNeal & R. G. Yaeger.

Parasitology of *Pneumocystis*, O. Jirovec.

*Eperythrozoon felis* not found in London cats, L. K. Thomsett.

#### Chemotherapy:

Extract of *Bacillus brevis*-like organism active on protozoa, F. Bergmann, R. Reitler & M. Chaimovitz.

Effect of surface-active ethers on protozoa, F. C. Goble, J. L. Boyd & J. D. Fulton.

Correlation of *in vitro* and *in vivo* techniques for testing anti-amoebic compounds, I. de Carneri & L. Almirante.

Action of newer amoebicides upon *Entamoeba histolytica* and *E. invadens* *in vitro*, B. S. Kaushiva.

Chemotherapy of experimental infections of *Entamoeba histolytica* and *E. muris* in rats, J. Pruss (2).

Amoebicidal activity of new compounds in the experimentally infected rats, U. Saxena & B. N. Singh.

Streptimidone effective against *Entamoeba histolytica*, D. L. Kohberger, etc.

Effect of oxyquinolines on *Entamoeba histolytica*, A. Hirabayashi.

Amoebicidal activity of unsaturated amides related to chlorophenoxamide, L. Almirante, etc.

Prophylaxis of amoebiasis with Mobinol, I. de Carneri & G. Coppi (1).

Chlorophenoxamide on *Entamoeba histolytica* in vitro and in vivo, I. de Carneri; G. Coppi (2); I. de Carneri, etc.

Effect of surface-active agents on *Leishmania donovani*, J. D. Fulton (2).

Effect of drugs on *Leishmania enriettii*, Z. Brener.

Drug resistance in *Trypanosoma*, J. Williamson.

Detection of drug-resistant trypanosomes from tsetse flies, J. Williamson & L. E. Stephen.

Changes in immuno-conglutinin levels of *Trypanosoma brucei* infections after chemotherapy, D. G. Ingram & M. A. Soltys.

Effect of trypanocides on arsenic-resistant and normal *Trypanosoma rhodesiense*, in vivo and in vitro, H. Fromentin.

Elimination of kinetoplast in *Trypanosoma evansi* by Prothidium, H. N. Ray & M. N. Malhotra.

Chemotherapy of an Indian strain of *Trypanosoma evansi*, A. B. Sen, S. K. Sharma & F. Hawking.

Cross-resistance of *Trypanosoma congolense* and *T. vivax*, E. F. Whiteside.

Stability of Berenil-resistance of *Trypanosoma congolense*, R. Fussganger & F. Bauer.

Effect of nucleocidin on *Trypanosoma vivax* in cattle, L. E. Stephen & A. R. Gray (2).

Prophylactic activity of antroicido-suramin complex on *Trypanosoma simiae*, L. E. Stephen & A. R. Gray (1).

Effect of primaquin and stylomycin on *Trypanosoma cruzi*, G. E. S. Moraes, J. Lopes Faria & J. F. Fernandes.

Trichomonocidal action of substances produced by bacteria and fungi, R. Lambotte.

Effect of furazolidone and aminothiazole against *Trichomonas* spp., M. P. Natt, etc.

Effect of radioactive magnesium chloride on *Trichomonas vaginalis*, R. Cuvelier, etc.

Treatment of *Trichomonas vaginalis* with 2-acetylaminio-5-nitrothiazole, W. Kucharczyk, J. Przemyski & J. Zawodzki (2).

Action of various drugs on subcutaneous infections of *Trichomonas vaginalis* in mice, F. S. Barr & B. J. Brent.

Action of *Aristolochia clematitis* extract on *Trichomonas vaginalis*, M. Ansel & M. Thibaut.

Effect of nitroimidazole on *Trichomonas foetus* in vitro and given to bulls, G. Gasparini, A. Tardani & M. Vaghi.

Treatment of experimental *Hexamita* infections in turkeys, W. C. McGuire & N. F. Morehouse.

Effect of chloroquine on *Giardia*, S. Iwata & T. Araki.

Mebinol not effective on *Giardia*, P. Dore.

Potentiality of the anticoccidial action of sulphadimidine by 2,4-diaminopteridines, C. Horton-Smith, P. L. Long & H. O. J. Collier.

Trials with phenothiazine for protection of turkeys against coccidiosis, S. K. Svanbaev (3).

Efficacy of pyrimethamine and sulphonamides against *Eimeria tenella*, L. P. Joyner.

Comparison of nitrofurazone and sulphamezathine for control of *Eimeria bovis*, D. M. Hammond, D. L. Ferguson & M. L. Miner.

Infectivity of gametocytes to mosquitoes after chemotherapy, G. M. Jeffery (2).

Development of *Plasmodium falciparum* resistant to pyrimethamine in Nigeria, H. M. Archibald.

Inhibition of sporogony of *Plasmodium vivax* and *P. falciparum* by pyrimethamine, M. Ciuca.

Effect of guanidines on *Plasmodium gallinaceum*, Y. C. Chin, etc.

Effect of Berenil on *Piroplasma caballi*, C. Battelli.

A carbanilide effective against *Babesia rodhaini* and *B. divergans*, J. N. Ashley, S. S. Berg & J. M. Lucas.

Review of the effect of drugs on *Toxoplasma*, D. E. Eyles (4).

Review of the treatment of experimental toxoplasmosis with sulphonamides, Daraprim and antibiotics, H. Rieger.

Effect of Daraprim and Primaquine alone and in combination with sulphonamides on *Toxoplasma*, E. Thiermann, G. Niedmann, E. Thiermann, H. Reyes & G. Niedmann.

Reversal of the action of sulphadiazine and pyrimethamine on *Toxoplasma* by PAB and folic acid, D. E. Eyles & N. Coleman.

Effect of stylomycin aminonucleoside on *Toxoplasma gondii* in vitro, L. H. Pereira da Silva.

Effect of spiramycin on *Toxoplasma*, J. P. Garin, D. E. Eyles & A. Bonaduce.

Chemotherapy of *Eperythrozoon parvum*, J. Seamer.

## GEOGRAPHICAL DISTRIBUTION

### GENERAL

Proportions of Protozoa characteristic of marine regions, F. Bernard (2).

### LAND AND FRESHWATER

Europe.—Astomate ciliates of L. Ochrid, P. de Puytorac, (3); Moss rhizopoda from Hungary, V. Lajos; Protozoa from the Danube, E. Kol & L. Varga; Testacea from Hungary, I. Lepsi (2); Myxozoa from France, D. Jarry & D. Vidal; *Mallomonas*

spp. in Hungary, E. Uherkovich; Protozoa from Hungarian swamps, J. Stiller (2); Flagellates from Switzerland, H. R. Christen (1); Flagellates from Swiss waters, H. R. Christen (2); Testacea from Germany, T. Groszitsch; Spores of Actinomyxidia in the Don, L. Hanulka, Donan-Wassers entlang de Strecke von Bratislava; Recent foraminifera from Roumania, C. Mărgineanu; Protozoa from Lancashire canal, England, A. L. Galliford; Ciliates from detritus drifts, L. Balaton, G. Tamás & J. Gellért (2); Ciliates from detritus drifts, L. Balaton, J. Gellért & G. Tamás (1), (2); Protozoa of a Rumanian lake, J. Lepš (2); Ciliates from sand (France), J. Dragesco; Testacea from Silesia, V. Opravilová-Spálovská.

**North Africa.**—Various protozoa from Egypt, F. Wawrik (1).

**Sino-Soviet Region.**—Flagellates from Manchuria, B. W. Skvortzow.

**Japan.**—*Euglena* about Tokyo, M. Saito.

**Indo-Malaysian Region.**—*Metopus spiralis* in India, K. N. Nair.

**Equatorial African Region.**—Rhizopoda from the Belgian Congo, P. Von Oye; Check list of W. African algae (incl. Phytomonadina), N. Woodhead & R. D. Tweed (1); Distribution of Testacea in French W. Africa, L. Decloitre (4), (5); Testacea of French W. Africa, L. Decloitre (5); Testacea of Belgian Congo, P. van Oye; *Haematococcus* in S. Africa, M. A. Pocock.

**North America.**—Some protozoa from Walla Walla Co., Washington, E. O. Bigelow & L. M. Ashley; Amoebida in Florida, E. C. Bovee (4); Protozoa from Mountain Lake region, Virginia, U.S.A., E. C. Bovee (8); Present day foraminifera from Texas; Marsh foraminifera from Massachusetts, F. L. Parkes & W. D. Athearn; Present day protozoa from Florida, D. A. Rossman.

**Central America.**—Costa Rican strain of *Entamoeba moshkovskii*, A. Ruiz (2).

**Antarctica.**—Antarctic Testacea, L. Decloitre (7).

#### MARINE

**Arctic.**—Foraminifera of North Asiatic coasts, W. Polski; Recent foraminifera from the Arctic Ocean, J. Jarke (2).

**North Atlantic.**—Silicoflagellates off Cape Cod, R. Margalef; Recent planktonic foraminifera from the western North Atlantic, A. W. H. Bé (2); Foraminiferal distribution in North Atlantic, J. Jarke (1).

**Mediterranean.**—Protozoa from Mediterranean Sea, C. M. de Angelis & R. D. Valle; Mediterranean Phalodaria, M. Enjumet; Present day foraminifera from Israel, Z. Reiss (1); Foraminifera from the Black Sea, N. Macarovici, C. Mărgineanu & B. Cehan; Ionesi; Recent foraminifera from Italy, A. G. Soika; Recent foraminifera from the Red Sea, M. Avnimelech (2); Recent foraminifera from the Mediterranean, J. Bourcart; Mediterranean foraminifera from Capri; C. Batteron; *Gymnesina glomerosa* n. gen., n. sp., Mediterranean, G. Colom (2); Recent foraminifera from Italy, G. Fierro; Recent foraminifera from the Ligurian Sea, M. Giunta; Plankton of Gulf of Cagliari (Med. Sea), C. Anichini; Tintinnids of Mediterranean, E. Balech; Zooplankton of Black Sea, C. Mărgineanu & A. Petran; Plankton of Black Sea, M. Bădescu &

N. Serpoianu et al.; Tintinnids from Israel, B. Komarovsky.

**North Pacific.**—Plankton of N. W. Pacific, B. E. Bogarov; Recent foraminifera from the Pacific, E. D. McKee J. Chronie & E. B. Leopold; Foraminifera from California, R. H. McGlasson; Intertidal foraminifera from California, M. Reiter; Ecology of foraminifera from California, E. R. Zalesny; Planktonic foraminifera of the Pacific, J. S. Bradshaw.

**Tropical Atlantic.**—Foraminifera from ocean currents, E. Boltovsky (4); Recent foraminifera from Louisiana, A. D. Warren; Foraminifera from the Mississippi Delta, R. R. Lankford; Foraminifera from Brazil, I. de M. Tinoco (3); Recent foraminifera from Brazil, I. de M. Tinoco (2); Recent foraminifera from the South Atlantic, E. Boltovsky (1); Pelagic foraminifera from the equatorial Atlantic and the Caribbean, D. B. Ericson & G. Wollin; Foraminifera of south Florida coasts, R. M. Ginsburg; Recent foraminifera from Texas, E. H. Shenton; Foraminifera from the Gulf of Mexico, D. R. Moore; Foraminiferal populations along the Texas coast, F. B. Phleger (2); Littoral dinoflagellates of Portuguese Guinea, E. de Sousa e Silva (1); Littoral Tintinnids of Portuguese Guinea, E. de Sousa e Silva (2); Foraminifera off Portuguese Guinea, J. dos Santos Pinto; Phytoplankton of Gulf of Mexico, H. Curl; Microplankton of Benguela Current (S.W. African coast), T. J. Hart & R. I. Currie; Plankton off Freetown (W. Africa), V. Bainbridge.

**Indo-Pacific areas.**—Planktonic protozoa from Indian Ocean, F. Bernard & J. Lecal; Recent foraminifera from the Philippines, J. J. Graham & P. J. Militante; Planktonic foraminifera of the Asiatic Shelf, H. O. Waller & W. Polski; Recent foraminifera from Japan, K. Asano (1), (3), (4); J. Matsuda; M. Ichihara & K. Nakaseko; K. Sawai.

**Antarctic.**—Antarctic benthonic foraminifera, T. Uchida (1), (2); Radiolaria from the Antarctic, W. R. Riedel; Radiolaria from the Antarctic, C. W. Thomas.

#### GEOLOGICAL DISTRIBUTION

**General.**—Evolution of protozoa, O. H. Schindewolf; Migration in fossil populations, H. Termier & G. Termier; Introduction to microfossils, D. J. Jones; A new method of foraminiferal correlation, W. E. Hendrix; Evolution of foraminifera, S. von Bubnoff; Diagenesis of Late Palaeozoic foraminifera, L. G. Henbest (2); Reworked foraminifera in Israel, M. Avnimelech (1); Index foraminifera, O. Pazdro (2); Relationship between foraminifera and bathymetry, O. L. Sandy (2); Presence of pyrite in the tests of some foraminifera, P. Murawski; Calcite and aragonite in foraminifera, R. Todd & P. Blackman; Coiling in foraminiferal tests, R. Dehm; Foraminifera in Australia and New Guinea, I. Crespin (2); Foraminifera from Ohio, A. La Roque & M. F. Marple; Protozoans from the Pre-Cambrian of North America, K. M. Madison.

**Palaeozoic.**—Palaeozoic foraminifera from Czechoslovakia, M. Vašíček (2); Palaeozoic foraminifera from Japan, I. Hayasaka & M. Minato; Palaeozoic foraminifera from China, J. C. Sheng (3); Lower Palaeozoic foraminifera from Germany, A. Eisenack (5); Silurian foraminifera from Kansas, H. W. Miller Jr.; Silurian foraminifera from Illinois, H. Schwalb & C. Collinson; Devonian foraminifera from Poland, S. Duszynska (1), (3); Devonian foraminifera from Western Australia, B. F. Glenister; Upper

palaeozoic foraminifera from Italy, R. Pozzi & F. Villa; Upper palaeozoic foraminifera from Hungary, L. Majzon; Upper palaeozoic foraminifera from Jugoslavia, V. Kochansky-Devids (2); Late palaeozoic foraminifera of America, L. G. Henbest; (2) Upper palaeozoic foraminifera from America, A. H. Coogan; Upper palaeozoic foraminifera from Japan, R. Morikawa & H. Igo (1); Upper palaeozoic foraminifera from China, J. C. Sheng & L. H. Chang; *Parafusulina rothi* from the Upper Palaeozoic of Mongolia, C. Lin-Hsin; Carboniferous foraminifera in England, E. B. Wolfenden; Carboniferous foraminifera from Britain, R. G. C. Bathurst; Carboniferous foraminifera from Ireland, W. G. E. Caldwell; Carboniferous foraminifera from Poland, S. Liszka (2) & S. Duszyńska (2); Carboniferous foraminifera from Germany, E. Paproth; Carboniferous foraminifera in the USSR, O. A. Ivanova; E. A. Reitlinger; N. P. Malakhova; O. A. Lipina (1); D. M. Rauser-Chernousova; O. J. Boghuah & O. V. Yuferev; Carboniferous foraminifera from Central India, S. B. Bhatia & S. K. Singh; Carboniferous (?) foraminifera from Japan, K. Konishi; Carboniferous foraminifera from Japan, S. Kawada (1); Carboniferous foraminifera from Mongolia, J. C. Sheng (2); Carboniferous foraminifera in the U.S.A., H. A. Ireland; Carboniferous foraminifera in New Mexico, M. Gordon jr.; Carboniferous foraminifera from Ecuador, H. J. Tschopp; Carboniferous foraminifera in North Africa, Y. Milliard; Carboniferous foraminifera from the Sahara, J. Fabre & C. Greber; Tournaisian foraminifera from Russia, O. A. Lipina (2); Lower Carboniferous foraminifera from Russia, E. V. Fornina & E. A. Zab'yalova; Lower carboniferous foraminifera from Japan, Y. Okimura; Mississippian foraminifera from America, R. Gutschick; Mississippian foraminifera from Indiana, R. C. Gutschick & J. F. Treckman; Pennsylvanian foraminifera from Japan, R. Toriyama; Coal measure foraminifera in the U.S.A., S. H. Marnay & E. L. Yochelson; Pennsylvanian fusulinids in Illinois, M. L. Thompson, R. H. Shaver & E. A. Riggs; Pennsylvanian foraminifera in Vermont, H. R. Wanless; Pennsylvanian foraminifera from Peru, N. D. Newell, J. Chronic & T. G. Roberts; Upper carboniferous fusulinids from Japan, K. Kammer (2); Upper carboniferous foraminifera from U.S.A., M. L. Thompson, G. J. Verville & D. H. Lokke; Upper carboniferous fusulinids from Nevada, G. J. Verville, M. L. Thompson & D. H. Lokke; Permo-Carboniferous foraminifera from Russia, A. A. Miklukho-Maklai; Permo-Carboniferous foraminifera from Japan, S. Kawada (2), H. Igo & K. Ogawa; Permian foraminifera from Poland, H. Wolanska; Permian foraminifera from Jugoslavia, V. Kochansky-Devids (1), (3), (4), & A. Ramovo; Permian foraminifera from Turkey, Z. Ternek & N. Blumenthal; Permian foraminifera from Crete, J. Papastamatiou & M. Reichel; Permian foraminifera from Russia, A. S. Kashirtzev; Permian foraminifera from Japan, M. Kawano; Permian foraminifera from Japan, N. Kanuma, S. Sakagami, H. Kano, S. Kamei, H. Igo, T. Sato, K. Kammer (1), S. Kawada (1), (3), M. Kawano, Y. Nagami, R. Morikawa (1), (3), (4); Permian foraminifera from Japan, M. Kobayashi, K. Ishii & K. Suyari, S. Akagi, S. Honjo; K. Matsuda & S. Imamura, Y. Onuki & H. Kudo, Y. Onuki, K. Asama & Y. Moriari; Permian foraminifera from Japan, S. Sakaguchi, W. Hashimoto et al., N. Yamagiwa & K. Ishii, R. Endo & W. Hashimoto; Permian fusulinids from Japan, R. Morikawa, H. Fujita, M. Murata, S. Kawada, M. Okubo, A. Matsuzaki, H. Igo, M. Sato,

M. Kobayashi, K. Yaguchi & R. Morikawa (2); New Genus from the Permian of Japan, R. Morikawa & H. Isomi; *Parafusulina* from the Permian of Japan, H. Fujimoto; *Yabeina* from the Permian of Japan, H. Igo (3); Reworked permian foraminifera from Japan, Y. Nagami; Permian foraminifera from China, J. C. Sheng (1), (4); *Boultonia cheri* from the Permian of China, Y. Ho (2); Permian foraminifera from America, T. V. Jennings; Permian foraminifera from Oklahoma, M. K. Elias; Permian foraminifera in Texas and New Mexico, N. D. Newell, J. K. Rigby, A. G. Fischer, A. J. Whiteman, J. E. Hickox & J. S. Bradley; Permian foraminifera from Kansas, N. G. Lane; Permian fusulinids in Nevada, U.S.A., R. L. Knight; Permian fusulinids in Texas, C. A. Ross; Fusulinids in U.S.A., W. A. Waldschmidt, P. E. Fitzgerald & C. L. Lunsford; Fusulinids of the Cordilleran region, U.S.A., H. J. Bissell; Fusulinids from Idaho, U.S.A., T. M. Cheney, V. E. McKelvey & W. C. Cere; Permian foraminifera from Peru, N. D. Newell J. Chronic & T. G. Roberts; Permian foraminifera from Australia, I. Crespin (1); Lower permian foraminifera from Japan, H. Igo (2), R. Morikawa & N. Kobayashi; Lower Permian fusulinids from Japan, K. Kammer (3); Silurian Radiolaria from Bohemia, F. Prantl (1); Devonian Radiolaria from America, H. P. Foreman; Carboniferous Radiolaria from France, G. Deflandre & M. Deflandre-Rigaud (1); Palaeozoic Hystrichosphaeridia from Germany, A. Eisenack (1); Lower palaeozoic chitinozoans from Oklahoma, L. R. Wilson; Ordovician Chrysomonadida from the Baltic, A. Eisenack (4); Ordovician chrysomonadida from Gotland, A. Eisenack (4); Ordovician Chrysomonadida from Ohio, A. Eisenack (4); Silurian Chrysomonadida from the Baltic, A. Eisenack (4); Silurian Chrysomonadida from Gotland, A. Eisenack (4); Silurian Hystrichosphaeridae from England, C. Downie; Silurian Hystrichosphaeridae from Germany, A. Eisenack (3); Devonian chitinozoans from America, D. L. Dunn.

**Mesozoic.**—Range of foraminifera in mesozoic, O. K. Kaptarenko-Chernousova (1); Mesozoic foraminifera from Germany, W. Mayne (2), M. Geiger & M. Kirchmayer; Mesozoic foraminifera from Spain, M. Casteras et al.; Mesozoic foraminifera from France, R. Chessax; Mesozoic foraminifera from the Alps, S. Prey; Mesozoic foraminifera from Italy, G. Raffi, A. Forti, S. Zanmatti, A. Alberti & B. Conforto; Mesozoic foraminifera from Hungary, L. Majzon; Mesozoic foraminifera of the Carpathians, M. Ksiakiewicz (2); Mesozoic foraminifera from Poland, K. Lydka & S. Geroch (2); Mesozoic foraminifera from the Ukraine, O. K. Kaptarenko-Chernousova (2); Mesozoic foraminifera in Alaska, F. M. Robinson, F. P. Rucker, H. R. Bergquist, R. Detterman (1) & C. L. Whittington; Mesozoic foraminifera from North Africa, J. Chaumeau; Triassic foraminifera from Italy, R. Pozzi & F. Villa; Triassic foraminifera from Czechoslovakia, J. Petráněk; Triassic foraminifera from Crete, J. Papastamatiou & M. Reichel; Triassic foraminifera from Poland, O. Styk & W. Bielicka (2); Triassic foraminifera from Japan, K. Nakasawa & T. Shiki; Triassic foraminifera from China, Y. Ho (1); Jurassic foraminifera, W. Mayne (6); Jurassic foraminifera from France, H. Garrot, R. Lacasagüe & G. Monet; *Kilianina* in French Jurassic, A. Aurouze; Jurassic foraminifera from Germany, W. Knafl & E. Drexler; Jurassic foraminifera from the Carpathians, V. Scheibnerova; *Pseudocylammina lituus* from the Jurassic, W. Mayne (6); Jurassic foraminifera in Central Europe, J. Wolburg (2); Foraminifera in



- English Jurassic, T. Bernard (1), (2), R. Cifelli & A. J. Lloyd; Jurassic foraminifera from Italy, S. Carboni & L. Lombardi; Jurassic foraminifera from Switzerland, A. Carozzi (1); Jurassic foraminifera from Yugoslavia, V. Kochansky-Devidé (5); *Orbitopsella proacursor* from the Jurassic of Yugoslavia, V. Kochansky-Devidé (5); Jurassic foraminifera from Poland, J. Kopik & O. Pazdrowa (1), (2); *Fiabellaminopsis* from the Jurassic of Poland, J. Malecki (1); *Ophthalmidium* from the Polish Jurassic, O. Pazdrowa (1); Jurassic foraminifera from Venezuela, R. J. Smith; Jurassic foraminifera from Egypt, R. Said & M. G. Barakat; Upper Jurassic foraminifera from France, M. Rollet; Upper Jurassic foraminifera from Poland, W. Bielicka (1); Cretaceous Foraminifera, H. M. Bolli (1); *Valvulineria lenticula* (Reuss) in the Cretaceous, R. W. Harris & C. L. McNulty jr.; Cretaceous foraminifera in France, A. Carozzi (2), Ph. Dufauze, J. Blanc, N. Roubicheon & J. Klaus; *Gouppilaudina* in the French Cretaceous, P. Marie; *Martiguesia cyclamminiformis*, a new genus of litulid from the French Cretaceous, W. Maync (5); New species of *Pseudoeyclamina* from the French Cretaceous, W. Maync (7); Reworked Cretaceous foraminifera in France, H. Teissier de Cros; Cretaceous foraminifera in Spain, P. Fallot, J. Magné & J. Sigal, P. Rat (1), M. D. Delga, J. Magné & Y. Peyre; Cretaceous foraminifera from Denmark, M. Reichel; Cretaceous foraminifera from the Netherlands XIV the genus *Orbignyna*, J. Hofker (2); Cretaceous foraminifera in the Alps, P. R. Lange & J. D. Klass; Cretaceous foraminifera from Switzerland, D. Rigassi (2); Cretaceous foraminifera in Bavaria, H. C. G. Knipscheer, & W. Zeil; Cretaceous foraminifera from Italy, T. Lipparini, G. Reggiori, W. Notchi, A. Franchino, M. B. Cita, D. Rossi & E. Montanaro Gallitelli (1); Cretaceous foraminifera from Czechoslovakia, V. Kantorova (3), S. Abramaviciute, J. Hercogova (1), (2), V. Pokorny (2), T. Cicha (3) & E. Handliková (1), (2), (3); Cretaceous foraminifera from Czechoslovakia, E. Menciak & V. Pesl, E. Handliková & A. Matějka, A. Matejka & Z. Roth; Cretaceous foraminifera from Belgium, J. Hofker (5), (6), (7), (8), (9), (10), (11), (13), (14), (15), (16), (17), (18), (19); *Omphalocyclus macroporus* (Lamarck) from the Belgian Cretaceous, J. Hofker (8); *Dycibicides kunradensis* from the Cretaceous of Belgium, J. Hofker (18); *Daviesina voighti* from the Cretaceous of Belgium, J. Hofker (3); Cretaceous foraminifera in Germany, O. Ganss & H. C. G. Knipscheer (1), H. C. G. Knipscheer & O. Ganss (2); Cretaceous foraminifera from Germany, R. Hückriede, W. Leischner, A. Papp (1), M. Kaefer, J. Wolburg (1), C. A. Wicker, B. Plücker & R. Oberhauser; Cretaceous foraminifera from Poland, J. Blaicher, F. Bieda (1), M. Książkiewicz (1), J. Kruczek, J. Liskova, H. Kozikowski, A. Jednerowska, S. Bukowy & S. Geroch; Cretaceous foraminifera from Poland, A. Tokarski, E. Scheibner, V. Scheibner, K. Pozaryska, W. Pozaryski, E. Witwicka, O. Pazdro (1), S. Alexandrowicz (2), (5), W. Pozoryski & A. Urbanek; *Globotruncana* from the Polish Cretaceous, S. Alexandrowicz (1); *Uvigerinammina jankoi* from the Cretaceous of Poland, S. Geroch (1); *Globotruncana Relicta* from the Cretaceous of Poland, V. Scheibner; Cretaceous foraminifera from Sicily, F. Rigo de Righi; Cretaceous foraminifera from Greece, K. Renz & M. K. Mitzopoulos; Cretaceous foraminifera from Roumania, T. Neagu (1), (2); Cretaceous foraminifera from Israel, Z. Reiss (2) & M. Avnimelech (1); Cretaceous foraminifera from Turkey, Z. Ternek & M. Blumenthal; Cretaceous foraminifera from Central Asia, A. Desio; Cretaceous foraminifera from India, Burma and Pakistan, Y. Nagappa (3); Cretaceous foraminifera from India, R. S. Sharma, K. Jacob & L. Ramo Rao; Cretaceous foraminifera from Pakistan and Afghanistan, M. S. Cita & M. A. Russell; Cretaceous foraminifera from America, P. Bronnimann & E. J. Bolin (1); Planktonic foraminifera from the Cretaceous of America, A. R. Loeblich & H. Tappan (1); Cretaceous foraminifera from Canada, C. R. Stelck, J. H. Wall & R. E. Wetter; Cretaceous foraminifera in Alaska, H. R. Bergquist (1); & R. Dettmerman (2); Cretaceous foraminifera in California, L. G. Hertlein; Cretaceous foraminifera from Minnesota, E. J. Bolin (2); Cretaceous foraminifera in South Carolina, G. E. Siple, P. M. Brown & H. E. Le Grand; Cretaceous foraminifera from Texas, L. R. Beddoes Jr.; Cretaceous foraminifera from Florida, J. E. Banks; Cretaceous foraminifera from Cuba, G. A. Seiglie; Cretaceous foraminifera from Trinidad, H. G. Kugler & H. M. Bolli (2); Cretaceous foraminifera in Haiti, J. Butterlin; Cretaceous foraminifera in Antigua, West Indies, P. H. A. Martin-Kaye; Cretaceous foraminifera from Brazil, I. de M. Tinoco (1); Cretaceous foraminifera from Ecuador, H. J. Tschopp; Occurrence of *Globotruncana ventricosa* in northwestern Peruvian Cretaceous, E. T. Ashworth; Cretaceous foraminifera in Africa, A. Caire, J. Magné, M. D. Delga & A. Lambert; Cretaceous foraminifera in North Africa, J. Polvéche, J. Emberger & J. Magné, L. David, H. Radier, R. Rivoirard, J. Sigal (1), J. Magné (1), J. Sigal & R. Rivoirard; Rosalindids in North African Cretaceous, J. Sigal (3); *Ticinella* in North African Cretaceous, J. Sigal (2); Cretaceous foraminifera from Egypt, S. E. Ansary & B. Y. Fakhr; Foraminifera from the Cenomanian of Egypt, S. Omara; Cretaceous foraminifera from Tunisia, C. Glinzboeckel & J. Magné; Cretaceous foraminifera from the Pacific, E. L. Hamilton; Lower Cretaceous foraminifera from France, J.-P. Thienlopy; Lower Cretaceous foraminifera from Poland, J. Szejn (1), (2); Lower Cretaceous foraminifera from Poland, J. Szejn (2); Lower Cretaceous foraminifera from Texas, W. H. Matthews *Nummuloculina* in Texan lower Cretaceous, J. Conkin & B. Conkin; Upper Cretaceous foraminifera from Germany, A. Papp (2); Upper Cretaceous foraminifera from Germany, A. Papp (2); Upper Cretaceous foraminifera from Poland, E. Witwicka & S. Alexandrowicz (1); Upper Cretaceous foraminifera from Roumania, M. G. Filipescu & I. Para; Upper Cretaceous foraminifera from Turkey, V. Öztumur; Upper Cretaceous foraminifera from South Africa, Y. H. Smutter; Upper Cretaceous foraminifera from Egypt, L. W. Le Roy; Mesozoic radiolaria from Italy, G. Riffi & A. Forti; Cretaceous radiolaria from Germany, W. Leischner; Cretaceous radiolaria from Minnesota, E. J. Bolin (2); Mesozoic radiolaria from the Middle East, G. F. Elliot Mesozoic Coccoliths from North Africa, D. Noel (2); Mesozoic Dinoflagellata from New Guinea, I. C. Cookson & A. Eisenack; Jurassic dinoflagellata from Yorkshire, W. A. S. Sarjeant; Coccoliths from the Jurassic of North Africa, D. Noel (1); Cretaceous Dinoflagellata from France, A. Delcourt & G. Sprumont; Cretaceous Dinoflagellata from Germany, A. Eisenack (2); Cretaceous Calpionellids from Germany, W. Leischner; *Deflandrea* (Dinoflag) from the German Cretaceous, G. Alberti (2); Cretaceous Coccoliths from France, G. Deflandre; Cretaceous Calpionellids from North Africa, M. Durand Delga (3); *Colomiella* from Tunisian Cretaceous, J. Bolze, G. Colom & J. Sigal; Calpionellids from the Cretaceous of North



Africa, J. Magné (2); Cretaceous calpionellids from the Alps, S. Frey; Cretaceous Coccoliths from England, M. Black & B. Barnes; Dinoflagellata from the Baltic Cretaceous, O. Wetzel; Mesozoic fibrospheres from North Africa, M. Durand Delga (2); Mesozoic Hystrichosphaeridae from New Guinea, I. C. Cookson & A. Eisenack; Jurassic Hystrichosphaeridae from Yorkshire, W. A. S. Sarjeant; Cretaceous Hystrichosphaeridae from France, A. Delcourt & G. Sprumont; Nannoconids in the French Cretaceous, G. Deflandre & M. Deflandre-Rigaud (2); Cretaceous Hystrichosphaeridae from Germany, A. Eisenack (2).

**Kainozoic.**—Kainozoic foraminifera from Trinidad, H. G. Kugler; Kainozoic foraminifera from the Pacific, E. L. Hamilton; Kainozoic foraminifera from Saipan Islands, W. S. Cole (1); Kainozoic foraminifera from Taiwan, T. Huang; Kainozoic foraminifera from America, T. F. Grimsdale; Tertiary foraminifera, I. M. Van der Vlerk; Stratigraphical usage of Tertiary foraminifera, W. J. Rothwell; Range of foraminifera in the Tertiary, O. K. Kapitarenko-Chernousova (1); American larger foraminifera, Discoeyclinids, W. S. Cole (6); American larger foraminifera: Camerinitids, W. S. Cole (4); Tertiary Lepidocyclinids, T. F. Grimsdale & I. M. van der Vlerk; Occurrence of *Nummulites millicaput*, S. Lefelove; Tertiary foraminifera in France, A. Carozzi (2), H. Parent, S. Durand & R. Chexes; Reworked Tertiary foraminifera in France, H. Teissier de Cros; Some pseudo-ooliths with *Nubecularia* from the Tertiary of Bourgogne, P. Rat (2); Tertiary foraminifera from Belgium, J. Hofker (7), (12), (16), J. H. van Voorthuysen (4); Tertiary foraminifera from Germany, J. Indans (2), E. Straub, R. Weinhandl (3), H. Hiltnermann (1), R. Silber (2), D. Spiegler, R. Ramseier, R. Oberhauser, U. Jux & H. D. Pfug; Tertiary foraminifera from Germany, B. Pluckinger, R. Oberhauser, K. Lemke, W. von Engelhardt, H. Fuchtbauer, H. Fahrion & E. W. Straub; Tertiary foraminifera from Denmark, M. Reichel; Tertiary foraminifera from Italy, G. Raffi, A. Forti, I. Viterbo & G. Ruggieri; Tertiary foraminifera in Italy, J. P. Bloch, P. Fallot, M. Lanteaume, A. Alberti, S. Carboni, L. Lombardi, B. Conforto, A. Forti, A. Franchino, H. Hagn, T. Lipparini (1), (2), M. Zei Moncharmont, M. Nocchi, L. Ogniben (1), (2); Tertiary foraminifera from Sicily, F. Rigo de Righi; Tertiary foraminifera in Spain, P. Fallot, J. Magné & J. Sigal; Tertiary foraminifera in the Alps, P. R. Lange; Tertiary foraminifera in the Maritime Alps, P. Marie & J. Perriaux; Tertiary foraminifera of the Carpathians, M. Ksiaskiewicz (2); Tertiary foraminifera from Czechoslovakia, M. Stejskalova, I. Cicha, V. Stiasny, Z. Kachyna, I. Uhrecký, M. Vasicek (1) & I. Suleimanov; Tertiary foraminifera from Czechoslovakia, E. Brestenska, A. Dluge, E. Hanzlikova (1), (4), K. Slavikova, A. Matejka, L. Roth, R. Lehotaýova, V. Kantorova (1) & I. Cicha (7), (8); Tertiary foraminifera from Switzerland, W. H. Zeigler; Tertiary foraminifera from Hungary, L. Majzon & M. Sido (1); Tertiary foraminifera from Roumania, I. Z. Barbu; Tertiary foraminifera in Poland, J. Blaicher, F. Bieda (1), H. Jurkiewicz (1), (2), J. Kruczek, H. Kozikowski, A. Jednerowska, S. Geroch (2), A. Tokarski, J. Liskova, O. Pazdro (1) & J. Kopik; *Uvigerina jankoi* from the Tertiary of Poland, S. Geroch (1); Tertiary foraminifera from Turkey, Z. Ternek & S. Turkinal; Tertiary foraminifera from India, K. Jacob & Y. Nagapapa (1); Tertiary foraminifera from Japan, Y. Higuchi, N. Kashima, T. Kihara, S. Murata, M. Sugahara, K. Matsuda, S.

Murata (2), K. Nakazawa, T. Shibi, D. Shimizu, Y. Nagami, Y. Naruse, T. Tai (2), M. Chiji (2) & S. Takahashi; *Kahlerina* from the Tertiary of Japan, Y. Takahashi; *Fabiania cassis* (Oppenheim) in Tertiary of Japan, S. Hanzawa (2); Tertiary foraminifera from Formosa, T. Kobayashi, L. S. Chang, C. S. Ho, S. F. Tsan, L. P. Tan, Y. T. Yang & F. Y. Lin; Tertiary foraminifera from New Caledonia, R. Porneyrol; Tertiary foraminifera from America, J. H. Hoff & W. R. Paine; Planktonic foraminifera from the Tertiary of America, A. R. Loeblich & H. Tappan (1); Tertiary foraminifera in Alaska, H. R. Bergquist (2); Tertiary foraminifera from Texas, J. E. Grayson & M. M. Osborne & M. S. Bishop; Tertiary foraminifera from California, V. S. Mallory (2); Tertiary foraminifera in Louisiana, M. J. Forman & S. O. Schlanger, R. P. Grigg Jr.; Tertiary foraminifera of Mississippi Delta, F. P. Shepard; Reworked tertiary foraminifera off California coast, R. W. Crouch; Reworked Tertiary foraminifera in deep water off Californian coast, G. A. Shumway; Tertiary foraminifera from the West Indies, W. S. Cole (3) & R. C. Mitchell (1); Tertiary foraminifera of equatorial and sub-tropical Atlantic, C. Emiliani (2); Tertiary foraminifera from Venezuela, R. J. Smith; Tertiary foraminifera in Peru, W. Ruegg; Tertiary foraminifera from Ecuador, J. G. Marks; Tertiary foraminifera from North Africa, J. Chaumeau, M. Kieken, J. Magné & J. Polvéché, M. Lanteaume (2), J. Magné (1), P. Muraour, J. Polvéché, G. Dubourdieu, R. Revoirard & J. Sigal; Tertiary foraminifera from Algeria, G. Blant, A. Cottencen & J. Magné; Tertiary foraminifera from Egypt, L. W. Le Roy; Tertiary foraminifera from East Africa, A. Azzaroli; Tertiary foraminifera from Australia, A. N. Carter; Tertiary foraminifera in Guam, M. J. Forman & S. O. Schlanger; Tertiary foraminifera from Sarawak, C. G. Adams (1); Tertiary foraminifera from the Indo-Pacific region, W. S. Cole (8); *Asterocyclina* from a Pacific seamount, W. S. Cole (7); Tertiary foraminifera from Eniwetok Atoll, W. S. Cole (2); Tertiary foraminifera from New Zealand, N. de B. Hornibrook (1); Lower Tertiary foraminifera in California, V. S. Mallory (1); Lower Tertiary foraminifera in Puerto Rico, C. A. Kaye; Palaeogene foraminifera from Germany, W. Wienholz; Palaeogene foraminifera from Czechoslovakia, J. Zehlman, M. Misić, A. Schalekova & H. Bystricka; Palaeogene foraminifera from Russia, F. V. Kipriyanova; Palaeogene foraminifera from India, B. S. Gupta; Palaeogene foraminifera from Japan, K. Asano (5) & S. Murata (1), (3); Palaeogene foraminifera in Puerto Rico, R. C. Mitchell (2); Palaeocene foraminifera from France, J. Villatte; Palaeocene foraminifera from Switzerland, P. Corminboeuf; Palaeocene foraminifera from Poland, H. Kozikowski; Palaeocene foraminifera from Ecuador, J. G. Marks; Palaeocene foraminifera from Egypt, S. E. Nakkady; Eocene foraminifera, W. Mayne (1); Eocene foraminifera from France, M. Lanteaume (1), A. Rouvillois, H. Schoeller, J. Sigal (4), M. Veillon & M. Vigneaux, L. Hottinger, Y. Le Calvez (2), M. Neumann & D. Boulanger; *Nummulites puschii* from the Eocene of France, M. Lanteaume (1); Eocene foraminifera in France and Belgium, Y. Le Calvez & L. Fengueur; Eocene foraminifera in Italy, M. Lanteaume (3), E. Lanterno, E. Perna, D. Rigassi (1) & F. A. Villa; Eocene foraminifera from Germany, A. Papp (3), L. Hottinger, H. Schaub & L. Vanderschmitt; Eocene foraminifera from Switzerland, D. Rigassi (2); Eocene foraminifera from Czechoslovakia, F. Bieda (4), G. Bombitá & V. Pokorný (3); Eocene foraminifera from Hungary,

- T. Kocskemeti (1); Eocene foraminifera from Poland, F. Bieda (2) & S. Liszka (1); Eocene foraminifera from Turkey, M. Blumenthal & K. Turnovsky (1), (2); Eocene foraminifera from Greece, K. Renz & N. K. Mitsopoulos, J. Aubonin & N. Neumann; Eocene foraminifera from Israel, M. Avnimelech (1); Eocene foraminifera from India, Burma and Pakistan, Y. Nagappa (3); Eocene foraminifera from Assam, B. K. Ghose; Eocene foraminifera from Japan, K. Asano (5); Eocene foraminifera in the United States, L. de A. Gimbrede; Eocene foraminifera in Florida, H. S. Puri (1), (3); Eocene foraminifera in French West Indies, S. Hanzawa (1); *Acerulina linearis* in Eocene of West Indies, S. Hanzawa (1); Eocene foraminifera from Ecuador, J. Hofker (1), H. J. Tschopp; Eocene foraminifera from N. Africa, P. Routhier; Eocene foraminifera from Algeria, A. Caire & P. Marie, R. Dame & J. Magné (1); Eocene foraminifera from Sylvania Guyot, E. L. Hamilton & R. W. Rex; Middle Eocene foraminifera from California, J. C. Crowell & T. Susuki; Oligocene foraminifera from France, R. Trumphy & A. Bersier; Oligocene foraminifera from Germany, C. Ellermann & H. Bartenstein; Oligocene planktonic foraminifera from the North Sea Basin, C. W. Drooger & D. A. J. Batjes; Oligocene foraminifera from Belgium, D. A. T. Batjes; Oligocene foraminifera in Central Europe, J. Indans (1); Oligocene foraminifera from Italy, E. Montanaro Gallitelli & V. Roveda; Oligocene foraminifera from Czechoslovakia, E. Hanzliková (3); *Cassigerinella boudecensis* from the Oligocene from Poland, V. Pokorný (4); Oligocene foraminifera from Japan, K. Asano (5); Oligocene foraminifera from North Africa, M. Durand Delga (1); Planktonic foraminifera from the Oligocene Algeria, C. W. Drooger & J. Magné; Upper Tertiary foraminifera from Italy, A. Longinelli; Neogene foraminifera from Germany, I. M. Van der Vlerk & Ph. H. Kuenen; Neogene foraminifera from Czechoslovakia, V. Pokorný (1), T. Buday, I. Cicha (1), (2), (5); Neogene foraminifera from Greece, E. Davis, (1); Neogene foraminifera from Japan, Y. Kuwano (1), (2), A. Hatayekama; Neogene foraminifera from North Africa, F. Ottman; Neogene foraminifera from Algeria, C. Tempere, J. Hilly & J. Magné; Miocene foraminifera from France, Y. Le Calvez & A. Le Farrais; Miocene planktonic foraminifera from the North Sea Basin, C. W. Drooger & D. A. J. Batjes; Miocene foraminifera from Germany, G. P. R. Martin, R. Sieber (1), (3), R. Weinhandl (1), (2), (4), R. F. Rutsch, C. W. Drooger & H. J. Oertli; Pelagic Miocene foraminifera from Spain, G. Colom & P. Muraour; Miocene foraminifera from Italy, C. W. Drooger, & C. Socin, M. J. Smedile & L. Bonfigero, C. Dieci & G. Tavanì (1), (2); Miocene foraminifera from Hungary, M. R. Nyiro (1); Miocene foraminifera of Greece, E. Davis (2); Miocene foraminifera from Austria, A. G. Tauber; Miocene foraminifera from Portugal, D. H. de Silva (1), M. de A. Diniz, G. H. da Silva (2); Miocene foraminifera from Cyprus, C. G. Adams (2); *Discospirina italica* from the Miocene of Cyprus, C. G. Adams (2); Geological distribution of *Discospirina* in the Miocene of Cyprus, C. G. Adams (2); Miocene foraminifera from Czechoslovakia, I. Cicha (3), (4), (6), I. Cicha, J. Paulik & J. Tejkal, V. Kantorova (2), R. H. Lehotayova-Danielova, V. Shutnerova-Havelkova, T. Buday & I. Cicha, S. Svoboda & I. Zapletalova; *Robulus meyeriscae* from the Miocene of Czechoslovakia, I. Cicha (6); Miocene foraminifera from Poland, S. Alexandrowicz & W. Parachoniak, R. Gradsinski, E. Luczkowska (1), (2), J. Melecki, T. Smigielka, A. Sulimski, S. Alexandrowicz (3), (4); *Flintinella volhynica* from the Miocene of Russia, V. Y. Didkovsky (2); Miocene foraminifera from India, S. B. Bhatia, S. R. Bhatia & K. Mohan, V. V. Sastri & K. Jacob; Miocene foraminifera from Japan, L. Fujita, S. Fujita & H. Ito, Y. Tai (1), (3), K. Tsuda & M. Chiji (3); *Vaginulina yoshihamensis* from the Japanese Miocene, M. Chiji (3); Miocene foraminifera from California, L. E. Garrison, R. L. Pierce, W. R. White, H. Skolnick & R. E. Arnal; Miocene foraminifera from Florida, H. S. Puri (2), H. Puri & R. O. Vernon; Miocene foraminifera from Virginia, J. D. McLean (1); Miocene foraminifera from Venezuela, W. H. Blow; Miocene foraminifera in Africa, A. Perrodon & C. Tempère; Miocene foraminifera in North Africa, J. Magné & M. Mattauer, M. Mattauer, R. Dame & J. Magné (2), G. Dubourdieu & S. Hottinger; Pelagic Miocene foraminifera from Algeria, G. Colom & P. Muraour; Planktonic foraminifera from the Miocene of Algeria, C. W. Drooger & J. Magné; Miocene foraminifera in Senegal, R. Abrard & A. Gorodiski; Miocene foraminifera from South Africa, P. G. Biesiot; Miocene foraminifera from Madagascar, R. Lavocat P. Marie & J. Sigal; Miocene foraminifera from Australia, P. Vella; Foraminifera from the Lower Miocene of South Australia, M. F. Glaessner & M. J. Wade (1); Pliocene foraminifera from Italy, R. Colacicchia, M. Giunta-Ilacqua, M. Zei Moncharmont & G. Charrier; Pliocene Foraminifera from Sardinia, A. Zinari; Pliocene foraminifera from Sicily, T. Lipparini, A. Malatesta, M. L. Nicosisia & A. Valdinucci; Pliocene foraminifera from Portugal, G. S. de Carvalho & G. Colom; Pliocene foraminifera from Israel, M. Avnimelech (1); Pliocene foraminifera from Japan, M. Chiji (1); Pliocene foraminifera in California, W. R. White; Pliocene foraminifera from North Africa, Y. Le Calvez (1); Quaternary foraminifera, I. M. Van der Vlerk; Quaternary foraminifera from Holland, J. H. Van Voorthuysen (3); Quaternary foraminifera from Germany, R. Weinhandl (3); Quaternary foraminifera from Italy, B. Conforto & T. Lipparini (1); Quaternary foraminifera from Sicily, T. Lipparini & A. Malatesta, M. L. Nicosisia & A. Valdinucci; Quaternary foraminifera from Poland, J. Kopik; Quaternary foraminifera from Japan, Y. Higuchi; Quaternary foraminifera from Formosa, C. S. Ho, S. F. Tsan & L. P. Tan, S. F. Tsan & Y. T. Yang & F. Y. Lin; Quaternary foraminifera from North-West Greenland, J. Malaure & S. Pimenta-Freneux; Quaternary foraminifera from Venezuela, R. J. Smith; Quaternary foraminifera from N. Africa, J. Chaumeau; Pleistocene foraminifera from Italy, A. Lazzari & M. Zei Moncharmont (2); Pleistocene foraminifera from Japan, Y. Takayanagi; Pleistocene foraminifera from Egypt, R. Said & M. A. Basiouni; Pleistocene foraminifera from South Africa, W. J. Parr; Pleistocene foraminifera from Tasmania, A. C. Collins; Radiolaria in Alpine Tertiary, M. Lemoine; Tertiary radiolaria from Italy, G. Raffi & A. Forti; Tertiary radiolaria from America, J. H. Hoff; Tertiary radiolaria from the Pacific, W. R. Riedel (2); Tertiary Chrysomonadida from Germany, D. Maier (2); Tertiary Cocoliths from Germany, D. Maier (1); *Deflandrea* (Dinoflag.) from the German Tertiary, G. Alberti (2); Tertiary dinoflagellata from Germany, D. Maier (2); Tertiary hystriochapheridae from Germany, D. Maier (2); *Pseudodeflandrea* gen. n. (Dinoflag.) from the Oligocene of Germany, G. Alberti (1); Eocene cocolithophorida from the West Indies, W. Wetzel & R. Weyl.

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**Recent.**—Holocene foraminifera from Holland, J. H. Van Voorthuysen (2); Holocene foraminifera from Poland, J. Kruczek; Foraminifera from ocean currents E. Boltovskoy (4); Coiling of *Globigerina pachyderma* as a climatic indicator, D. B. Ericson; Recent foraminifera of European shelf areas, J. Jarke (1); Recent foraminifera from the North Sea, J. H. Van Voorthuysen (1); Recent foraminifera from France, R. Chesse; Recent foraminifera from Spain, J. Le Calvez & T. Le Calvez; Recent foraminifera from Roumania, C. Mărgineanu; Recent foraminifera from the Mediterranean J. Bourcart; Recent foraminifera from the Ligurian Sea, M. Giunta; Recent foraminifera from Italy, G. Fierro & A. G. Soika; Recent Mediterranean foraminifera from Capri, G. Batteron; Foraminifera from the Black Sea, N. Macarovič, C. Mărgineanu & B. Cehan-Jonesi; Recent foraminifera from the South Atlantic, E. Boltovskoy (1) Atlantic ocean cores, Recent, C. Emiliani (2); Recent foraminifera from the N. Atlantic, A. W. H. Bé (2); Recent foraminifera from Japan, T. Matsuda, Y. Ishiwada, M. Ichihara & K. Nakaseko K. Asano (1), (2), (3), (4) & K. Sawai; Present day foraminifera from Israel, Z. Reiss (1); Present day foraminifera from the Gulf of Mexico, D. R. Moore; Recent foraminifera of Gulf of Mexico, N. N. Greenman & R. J. Le Blanc; Present day foraminifera from the Texas coast, H. S. Ladd; Foraminifera of the Mississippi Delta, F. P. Shephard; Ecology of foraminifera, California, E. R. Zalesny; Intertidal foraminifera from California, M. Reiter; Offshore foraminifera from California, R. H. McGlasson; Recent foraminifera off Californian coast, R. W. Crouch; Ecology of marsh foraminifera in Popponesset Bay, Massachusetts, F. L. Parker & W. D. Athearn; Recent foraminifera from Louisiana, A. D. Warren; Foraminifera of Florida coasts, R. M. Ginsberg; Recent foraminifera from Florida, J. E. Banks; Recent foraminifera from Texas, H. V. Anderson & E. H. Shenton; Recent foraminifera from Trinidad, C. W. Drooger & J. P. H. Kaasschieter; *Homotrematium rubrum*, a reef-building foraminifera from Jamaica, V. A. Zans; Recent foraminifera from Brazil, W. Narchi & I. de M. de Tinoco (2), (3); Pelagic foraminifera from the equatorial Atlantic and the Caribbean, D. B. Ericson & G. Wollin; Recent foraminifera from the Red Sea, M. Avnimelech (2); Planktonic shelf foraminifera from Asia, H. O. Waller & W. Polski; Recent foraminifera from the Arctic Ocean, J. Jarke (2); Re-working of North Asiatic coastal foraminifera, Recent, W. Polski; Recent foraminifera from Australia, P. Vella; Recent foraminifera from the Pacific, E. D. McKee, J. Chronic & E. B. Leopold; Paleotemperature of Pacific bottom waters, O. L. Bandy (1) & C. Emiliani (1); Planktonic foraminifera in the Pacific Ocean, J. S. Bradshaw; Recent foraminifera from the Philippines, J. J. Graham & P. J. Militante; Recent foraminifera from Tasmania, A. C. Collins; The foraminiferal genus *Halyphysema* and two new tropical Pacific species, A. R. Leoblich Jr.; Radiolaria from the Antarctic, C. W. Thomas; Antarctic Radiolaria, W. R. Riedel; Recent dinoflagellata from the Antarctic, E. Balech; Tintinnids from Israel, B. Komarovskiy; Recent tintinnids from the Antarctic, E. Balech.

### III. SYSTEMATIC INDEX

References to the "Titles" are made by the name(s) of the Author(s) printed in Clarendon type.

### GENERAL

Cambridge Collection of Algae, etc., E. G. Pringsheim.

Comments on the systematics of protozoa, J. O. Corliss (2).

### I.—RHIZOPODA

Locomotion and taxonomy of lower rhizopoda, E. C. Bovee and T. L. Jahn.

Movement basis of classifying Rhizopoda, T. L. Jahn, E. C. Bovee & E. B. Small.

#### (a) Amoebida.

*Amoeba helvetica* nom. n. (= *A. spumosa* Penard); *A. eichhorniae* sp. n. (p. 1069); (Rumania), I. Lepsi, (3); *A. silvicola* sp. n. (p. 150); *A. bifurmis* sp. n. (p. 151) (Rumania), J. Lepsi (3). *A. tachypus* sp. n. (p. 76) (Rumania), J. Lepsi (4).

*Hyalodiscus simplex* sp. n. (p. 74) (Europe), K. E. Wohlfarth-Bottermann (3).

*Mayorella clavella* sp. n. (p. 416) (N. America), E. C. Bovee (1).

Locomotion and pseudopodia as taxonomic characters of *Mayorella*, E. C. Bovee (6).

#### (b) Testacea.

Testacea of Belgian Congo, P. van Oye.

Testacea of Niokolo-Koba (French W. Africa), L. Decloitre (5).

Testacea of Belgium, D. Chardez (1) (3).

Testacea from Germany, T. Groszpietsch.

†*Amphitrema congolense* sp. n. (p. 124) (Belgian Congo), P. van Oye.

†*Arcella vulgaris* var. n. *depressa* (p. 94) (Belgian Congo), P. van Oye; *A. angulata* comb. u. (p. 2), L. Decloitre (4).

†*Asulinea quadratum* sp. n. (p. 120) (Belgian Congo), P. van Oye.

*Centrophysia aculeata* var. *lata* var. n. (p. 239); *C. sexilata* sp. n. (p. 245); *C. aerofla* var. *cornuta* var. n. (p. 248); all French W. Africa, L. Decloitre (5); *C. eassii* var. *mimima* var. n. (p. 98); *C. pyriformis* sp. n. (p. 99) (Belg. Congo), P. van Oye; *C. kolwitsi* var. *grandis* var. n. (p. 296) (Belgium), D. Chardez (1); †*C. pyriformis* sp. n. (p. 99) (Belgian Congo), P. van Oye.

*Corythion nebeloides* sp. n. (p. 81).

*Euglypha anodonta* sp. n. (p. 82).

*Paracentropyxis* gen. n. (p. 82); *P. mimetica* sp. n.

*Plagiopyxis barrosi* (p. 84); all from Angola, L. Bonnet (1).

*Cucurbitella crateriformis* sp. n. (p. 573); *C. dentata* sp. n. (p. 574); *C. dentata quinquelobata* forma n. (p. 575); *C. d. elongata* var. n. (p. 576); *C. d.* var.

*elongata* forma *quinguelobata* forma n. (p. 576); *C. d. simplex* var. n. (p. 576); *C. d. var. simplex* forma *quinguelobata* forma n. (p. 577); *C. d. var. simplex* forma *crucilobata* forma n. (p. 577); *C. d. var. simplex* forma *trilobata* forma n. (p. 577); *lunaris* sp. n. (p. 578); *C. madagascariensis* sp. n. (p. 579); *C. megastoma* sp. n. (p. 580); *C. m. forma crucilobata* forma n. (p. 581); *C. m. forma multilobata* forma n. (p. 582); *C. mespiliformis* var. *africana* var. n. (p. 583); *C. m. var. africana* forma *trilobata* forma n. (p. 584); *C. modesta* sp. n. (p. 585); *C. modesta* forma *trilobata* forma n. (p. 586); *C. obturata* sp. n. (p. 586); *C. o. var. curvidentata* var. n. (p. 588); all from Africa, L. Gauthier-Lièvre & R. Thomas.

*Ocucurbitella*, Taxonomy of, L. Gauthier-Lièvre & R. Thomas.

*Diffugia*, taxonomy of, L. Decloitre (2). *D. angelica* sp. n. (p. 589); *D. (Pseudocucurbitella) obturata* sp. n. (p. 591); *D. (P.) pseudogramen* sp. n. (p. 592) all from Africa, L. Gauthier-Lièvre & R. Thomas; *D. gramen* forma *globulosa* f. n. (p. 142); (Czechoslovakia), M. Štěpánek & J. Jiří; *D. lagena* sp. n. (p. 55); *D. pyriformis* var. *antero-cylindrica* nom. n. (p. 56) (Rumania), J. Lepš (2); *D. mosaruzii* sp. n. (p. 96) (Belg. Congo), P. van Oye; *D. oblonga* Ehr. var. *crassa* (Caah) comb. n. (p. 118), D. Chardez (2); *D. gramen*, systematic and statistical analysis of, M. Štěpánek & J. Jiří.

†*Euglyppla curvata* sp. n. (p. 117); *E. filifera* var. n. magna (p. 117); *E. marginata* sp. n. (p. 118); *E. symoensis* sp. n. (p. 119) (Belgian Congo), P. van Oye; *E. compressa* var. *inermis* var. n. (p. 81); *E. striata* sp. n. (p. 82); *E. sphaerica* sp. n. (p. 82); (Rumania), J. Lepš (4); *E. rotunda* forma *obliqua* f. n. (p. 255) (French W. Africa), L. Decloitre (5); *E. strigosa* var. *longispina* var. n. (p. 62) (Rumania), I. Lepš (2).

Euglyphridae from Africa, R. Thomas & L. Gauthier-Lièvre (2).

*Heleopera elliptica* sp. n. (p. 60) (Rumania), I. Lepš (4).

*Heteroglyphypha* gen. n. (p. 205); *H. delicatula* sp. n. (p. 206) (Congo), *H. delicatula breviculus* var. n. (p. 206) (Congo), R. Thomas & L. Gauthier-Lièvre (2).

*Hyalosiphonia schoutedeni* var. n. *rotunda* (p. 114) (Belgian Congo), P. van Oye.

*Jungia intermedia* sp. n. (p. 113) (Belgian Congo), P. van Oye.

*Lesquerousia bispiralis* sp. n. (p. 41) (Africa), *L. gibbosa* sp. n. (p. 44) (Africa); *L. gibbosa* var. *corniculata* var. n. (p. 46); (Africa); *L. g. var. incisa* var. n. (p. 46) (S. America, Africa); *L. g. var. nodosa* var. n. (p. 48) (Africa); *L. globulosa* sp. n. (p. 48) (Africa); *L. mimetica* var. *parva* var. nov. (p. 51) (France, Africa); *L. modesta* forma *stepaneki* forma n. (p. 54) (Czechoslovakia); *L. modesta* var. *caudata* comb. n. (p. 54) (Australia, S. America); *L. m. dentata* var. n. (p. 56) (Africa); *L. m. truncata* var. n. (p. 58) (Africa); *L. ovalis* sp. n. (p. 58) (Africa); *L. ovalis* var. *acuminata* var. nov. (p. 59) (Africa); *L. o. cornuta* var. nov. (p. 59) (Africa); *L. o. mucronata* (p. 63) (Africa); *L. spiralis* forma *arcuata* forma n. (p. 70) (Africa); *L. spiralis* var. *hirsuta* var. n. (p. 72) (Africa); *L. s. hoogenraadi* var. n. (p. 74) (England); *L. s. nodosa* var. n. (p. 76) (Congo); *L. s. penardi* var. n. (p. 76) (Africa); *L. s. villosa*

var. n. (p. 78) (Europe, Africa); *L. tuberculata* sp. n. (p. 80) (Africa), R. Thomas & L. Gauthier-Lièvre (1). *L. collaris* sp. n. (p. 56) (Rumania), I. Lepš (2).

*Lesquerousia*, taxonomy of, L. Decloitre (1).

*Placcocistira ventricosa* sp. n. (p. 210) (Congo), R. Thomas & L. Gauthier-Lièvre (2).

*Plagiopsis*, systematics. *P. callida* var. *grandis* var. n. (p. 206), R. Thomas.

*Protocucurbitella* gen. n. (p. 593); *P. coroniformis* sp. n. (p. 593); *P. c. loc. c. eornis* forma n. (p. 595); *P. c. loc. c. pusilla* var. n. (p. 595); *P. c. loc. c. pusilla* forma *ecornis* (p. 595), all from Africa, L. Gauthier-Lièvre & R. Thomas.

*Quadrullella acuminata* sp. n. (p. 107); *Q. symmetrica* var. *kiruensis* var. n. (p. 107) (Belg. Congo), P. van Oye.

*Sphenoderia australis* var. *chardezi* var. n. (p. 211) (Africa); *S. labiata* sp. n. (p. 212) (Africa), R. Thomas & L. Gauthier-Lièvre (2).

*Tracheleuglyppha acolla* forma *stenostroma* f. n. (p. 202) (Belgium), D. Chardez (3). *T. dentata* var. *elongata* comb. n. (p. 219) (Africa); *T. d. elongata* forma *duplicata* f. n. (p. 220) (Africa), R. Thomas & Gauthier-Lièvre (2).

#### (c) Foraminifera.

†*Actinosiphon* Vaughan 1929; suppression thereof, T. F. Grimsdale (2).

†*Afghanella schencki* Thomson var. n. *megasperica* p. 277) Permian, China, J. C. Sheng (4).

†*Agathammina* Neumayr 1887 emend. (p. 47) Permian, Poland, H. Wolanska.

†*Albamina bigibbera* sp. n. (p. 94) Eocene, France, T. Le Calvez (2).

†*Alabamina oschmanni* sp. n. (p. 167) Tertiary, Italy, H. Hagn; †A., status thereof (p. 111), J. Hofker (22).

†*Aljutovella verusta* sp. n. (p. 86); *A. succincta*, *pseudoelongata* spp. n. (p. 87), Palaeozoic, Japan, J. C. Sheng (3).

†*Alveolophragmium*, status thereof; Eocene, W. Mayne (1).

†*Alveolophragmium zealandicum* sp. n. (p. 15), Miocene, Australia, P. Vella.

†*Ammobaculites ovatus*, *elongatus* spp. n. (p. 288), Cretaceous, Minnesota, E. J. Bolin (2); †*A. polonicus* sp. n. (p. 12), Cretaceous, Poland, J. Szejn (2); †*A. crispus* sp. n. (p. 75), Paleogene, Russia, F. V. Kipriyanova; †*A. eccentrica* sp. n. (p. 73); *A. wanda-gensis* sp. n. (p. 74), Permian, Australia, I. Crespin (1); †*A. khargensis* sp. n. (p. 456), Paleocene, Egypt, S. E. Nakhady; †*A. leptos* sp. n. (p. 247); *A. pyriformis* sp. n. (p. 248), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman; †*A. magnigranulus* sp. n. (p. 857); *A. parallelus* sp. n. (p. 858); Carboniferous, U.S.A., H. A. Ireland; †*A. multicameratus* sp. n. (p. 127), Tournaisian, Russia, O. A. Lipina (2).



†*Ammocibicides anaticus* sp. n. (p. 78), Eocene, Turkey, K. Turnovsky (2).

†*Ammodiscella* gen. n. *virgilensis* sp. n. (p. 845) (genotype), Carboniferous, U.S.A., H. A. Ireland.

†*Ammodiscus*, status thereof, T. Barnard (2); †*A. leei* sp. n. (p. 1351), Silurian, Kansas, H. W. Miller, Jr.; †*A. parapriscus* sp. n. (p. 394), Trias, China, Y. Ho (1); †*A. similis* sp. n. (p. 74), Devonian, Poland, S. Duszynska (3); †*A. erugatus* sp. n. (p. 66); *A. conahensis* sp. n. (p. 69), Permian, Australia, I. Crespin (1); †*A. muhlmanni* sp. n. (p. 109), Miocene, Venezuela, W. H. Blow.

†*Ammospirata* ? *levyensis* sp. n. (p. 102) Eocene, Florida, H. S. Puri (3).

†*Ammovertella elevata* sp. n. (p. 851); *A. labyrinthica*, *primiparva*, *prodigalis* spp. n. (p. 854); *A. tornella* sp. n. (p. 855), Carboniferous, U.S.A., H. A. Ireland; *A. bulbosa* sp. n. (p. 247), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman.

†*Amphilepidina* Douville 1922, status thereof, T. F. Grimsdale & I. M. van der Vlerk; *A. Douville* 1922; suppression thereof, T. F. Grimsdale (2).

†*Amphistegina ulraensis* sp. n. (p. 75), Miocene, South Africa, P. G. Biesiot.

†*Angulogerina ecuadorensis* sp. n. (p. 929), Eocene, Ecuador, J. Hofker (1); *A. gracilis* sp. n. (p. 34), Miocene, Australia, P. Vella.

†*Anomalina hamanakoensis* sp. n. (p. 18), Recent, Japan, Y. Ishiwada; *A. aegyptiaca*, *desertorum* spp. n. (p. 17), *A. grandis* sp. n. (p. 18), Cretaceous, Egypt, L. W. Le Roy; *A. tumida* sp. n. (p. 183), Eocene, Poland, S. Liozka (1); *A. cateno-marginata* sp. n. [nom. nud.] (p. 160), Tertiary, Romania, I. Z. Barku.

†*Anomalinoides procolligera* sp. n. (p. 49), Tertiary, Australia, A. N. Carter; *A. subalpinus* sp. n. (p. 177), Tertiary, Italy, H. Hagn; *A. spherica* Finlay subsp. n. *frigendex* (p. 39), Miocene, Australia, P. Vella.

†*Archaeochitosa* gen. n. (p. 91) *lobosa* sp. n. (p. 91) (genotype), *A. clausa*, *cervicornia* spp. n. (p. 92), Ordovician, Germany, A. Eisenack (5).

†*Archaias eniwetokensis* sp. n. (p. 766), Tertiary, Eniwetok Atoll, W. S. Cole (2); *A. withlacoochensis* sp. n. (p. 142), Eocene, Florida, H. S. Puri (3).

*Arenoparrella mexicana* var. n. *asiatica* (p. 585), Recent, north Asiatic coasts, W. Polski.

†*Arenosiphon rugosa* sp. n. (p. 1353), Silurian, Kansas, H. W. Miller, Jr.

†*Arenovidalina* gen. n. *chialingchiangensis* sp. n. (p. 400); *A. c.* var. n. (p. 401); *A. c.* var. n. *rhombica* (p. 401); *A. amylovoluta* sp. n. (p. 401), Trias, China, Y. Ho (1).

†*Articulina zuberensis* sp. n. (p. 109), Eocene, H. S. Puri (3).

†*Articulina scrobicularis* sp. n. (p. 261), Miocene, Poland, T. Smigielska.

†*Assilina subepinosa*, Davies var. n. *megacamerata*, *A. papillata*, Nuttall var. n. *regularia*; *A. cherrapunjiensis* sp. n. (p. 376), Tertiary, Assam, B. K. Ghase.

†*Astacolus neolatus* sp. n. (p. 30), Miocene, Australia, P. Vella; *A. bifurcatus* sp. n. (p. 19), Tertiary, Egypt, L. W. Le Roy.

†*Asterigenerina minuta* sp. n. (p. 280), Miocene, Poland, T. Smigielska.

†*Asterocyclina incisuricamerata* sp. n. (p. 349); *A. matanzensis* sp. n. (p. 350); *A. penuria* nom. n. [for *Discocyclina* sp. B. Cole 1953, and *Asterocyclina* aff. *A. pentagonalis*, Deprat of Caudri 1934] (p. 350); Kainozoic, W. S. Cole (1); *A. centrifugalis* sp. n. (p. 775); *A. praecipua* sp. n. (p. 780); Tertiary, Eniwetok Atoll, W. S. Cole (2); *A. elongaticamera* sp. n. (p. 11), Tertiary, Pacific seamount, W. S. Cole (7).

†*Astrononion centroplax* sp. n. (p. 61), Tertiary, Australia, A. N. Carter.

†*Astrorhiza virgilensis* sp. n. (p. 840), Carboniferous, U.S.A., H. A. Ireland.

†*Astrorotalia* subgen. n. (p. 81) (of *Globorotalia*) *stellaria* sp. n. (p. 81) (subgenotype), Eocene, Turkey, K. Turnovsky (1).

†*Atetsuella* gen. nov. (p. 251) *imamurai* sp. n.; *A. meandra* sp. n. (p. 253) (genotype) (p. 253); Lower Carboniferous, Japan, Y. Okimura.

†*Baggina saitoi* sp. n. (p. 51); Oligocene, Japan, K. Asano (5); *B. dentata* sp. n. (p. 165), Tertiary, Italy, H. Hagn; † *B. nagasakiensis* sp. n. (p. 58), Tertiary, Japan, K. Asano (5).

†*Bartramella* gen. n. (p. 1278) *bartrami* sp. n. (p. 1280) (genotype) Upper Carboniferous, Nevada, G. J. Verville, M. L. Thompson & D. H. Lokke.

†*Bigerina elongata* sp. n. (p. 862); *B. virgilensis* sp. n. (p. 863); Carboniferous, U.S.A., H. A. Ireland; *B. nodosaria* var. n. *longa* (p. 257), Miocene, Poland, T. Smigielska. *B. fragilis* sp. n. (p. 202) (Spanish Coast), J. Le Calvez & Y. Le Calvez; † *B. japonica* sp. n. (p. 79), Recent, Japan, K. Asano (5).

*Biloculinella wiesneri* nom. n. (p. 203) (for *Miliolina eburnea* Wiesner (non d'Orbigny), Spanish Coast, J. Le Calvez & Y. Le Calvez.

*Biwaella* gen. n. (p. 301) *omiensis* sp. n. (p. 302), Permian, Japan, R. Morikawa & H. Isomi.

†*Bolivina benedictensis* sp. n. (p. 1307); *B. marginata* var. n. *monicana* (p. 1308), Miocene, California, R. L. Pierce; † *B. hyalina* sp. n. (p. 277), Miocene, Poland, T. Smigielska; † *B. dinapoli* sp. n. (p. 143); *B. detellata* sp. n. (p. 144), Miocene, Italy, G. Tavani (1); † *B. decurrens nekhliana*, Said and Kenawy nom. n. (for *Bolivina decurrens parallela*, Said and Kenawy 1956 (non *Bolivina parallela*, Perner 1892 olim. *Textularia parallela*, Perner), H. E. Thalmann (3); † *B. argentea* var. *resigi* nom. n. Zalesny [for *Bolivina argentea* var. *monicana*, Zalesny 1959 (non *Bolivina marginata* var. *monicana*, Pierce 1956)], H. E. Thalmann (3); † *B. numerosa*, *cacozela* spp. n. (p. 33), Miocene, Australia, P. Vella; † *B. pocheensis* sp. n. (p. 251), Miocene,



California, W. R. White; †*B. fufei* sp. n. (p. 658), Tertiary, New Zealand, N. de B. Hornibrooke (1); †*B. semireticulata* sp. n. (p. 20), Tertiary, Egypt, L. W. Le Roy; †*B. dilatata* var. n. abbreviata (p. 156); *B. italica* var. n. substriata (p. 158); *B. adriana* sp. n. (p. 160), Upper Tertiary, Italy, A. Longinelli; †*B. mtubatubanensis* sp. n. (p. 71), Miocene, South Africa, P. G. Biesiot; †*B. kienensis* sp. n. (p. 19); *B. substriatula tosaensis* sp. n. (p. 23), Recent, Japan, K. Asano (4); †*B. nagaii* sp. n. (p. 60), Paleocene, Japan, K. Asano (5); †*B. lafayettei* sp. n. (p. 346), Miocene, Virginia, J. D. McLean (1); †*B. daniana* sp. n. (p. 459), Paleocene, Egypt, S. E. Nakkady.

†*Bolivinita granttaylori* sp. n. (p. 33), Miocene, Australia, P. Vella.

†*Bolivinitoides polonica* n. sp. (p. 252); *B. vistulae* n. sp. (p. 253), Cretaceous, Poland, K. Pozaryska; †*B. mielnicensis* sp. n. (p. 35), Cretaceous, Poland, E. Bieda.

†*Bolivinitopsis itchodaensis* sp. n. (p. 66), Eocene, Japan, K. Asano (5).

†*Bolliella subgenus* n. (p. 12) (subgenotype *Hastigerina (Bolliella) adamsi* sp. n. (p. 13), Recent, F. T. Banner & W. H. Blow.

†*Borelia primitivus* sp. n. (p. 766), Tertiary, Eniwetok Atoll, W. S. Cole (2).

†*Borelodes eniwetokensis* sp. n. (p. 768), Tertiary, Eniwetok Atoll, W. S. Cole (2).

†*Boultonia cheni* sp. n. (p. 64), Permian, China, Y. Ho (2).

†*Buccella anderseni* sp. n. (p. 354), Miocene, Virginia, J. D. McLean (1).

†*Bulimina esnaensis* sp. n. (p. 20); *B. forasraensis* sp. n. (p. 21), Tertiary, Egypt, L. W. Le Roy; †*B. praecanthia* sp. n. (p. 345), Miocene, Virginia, J. D. McLean (1); †*B. australis* sp. n. (p. 32), Miocene, Australia, P. Vella; †*B. pseudovata* sp. n. (p. 920) (includes *B. ovata*, Cushman & Stainforth 1951 non d'Orbigny 1846), Eocene, Ecuador, J. Hofker (1); †*B. serratospina*, Finlay subsp. n. *bermudezi* (p. 145), Tertiary, Italy, H. Hagn; †*B. kaselensis* sp. n. (p. 127) *B. dingdenensis* sp. n. (p. 128), Tertiary, Belgium, D. A. T. Batjes; †*B. nipponica* sp. n. (p. 6), Recent, Japan, K. Asano (4); †*B. yabei* sp. n. (p. 53), Oligocene, Japan, K. Asano (5).

†*Buliminella gratawas joaquinensis* nom. n. Mallory [for *Buliminella grata convoluta*, Mallory (non *Buliminella convoluta*, Williamson 1858 olim: *Bulimina papoides* var. *convoluta*, Williamson)], H. E. Thalmann (3); †*B. waiparaensis* sp. n. (p. 658), Tertiary, New Zealand, N. de B. Hornibrooke (1).

†*Calciavertella palata* sp. n. (p. 85), Permian, Australia, T. Crespin (1).

†*Carpenteria* Gray, status thereof (p. 200), emend thereof (p. 203); *C. hamiltonensis* sp. n. (p. 200), Eocene, M. F. Glaessner & M. Wade (2); †*C. conoidea*, Rutten, status thereof (p. 199), M. F. Glaessner & M. Wade (2).

†*Cassidulina sublaevigata*, sp. n. (p. 931), Eocene, Ecuador, J. Hofker (1); †*C. crepidula*, sp. n. (p. 33), *C. paratoriosa*, sp. n. (p. 34), *C. elegans*, Sidebottom var. n. *bosensis* (p. 34), Neogene, Y. Kuwano (1); †*C. nojimana* sp. n. (p. 79), *C. undata* sp. n. (p. 80), Neogene, Japan, Y. Kuwano (2).

†*Cassidulinoides miuraensis* sp. n. (p. 58), Tertiary, Japan, Y. Higuchi.

†*Cassigerinella* gen. n. (p. 136), *C. oudensis* sp. n. (p. 138), Oligocene, Poland, C. globulosa [from *Cassidulina globulosa* Egges 1857], N. Pokorny (4).

†*Ceratobulimina globulosa* sp. n. (p. 141), Cretaceous, Italy, E. Montanaro Gallitelli (1); †*C. cretacea* Cushman & Harris var. n. *felsina* (p. 339), Cretaceous, Italy, T. Lipparini (2).

†*Chilostomella amakusaensis* sp. n. (p. 67), Eocene, Japan, K. Asano (5).

†*Cibicides thiaracuta* sp. n. (p. 668), Tertiary, New Zealand, N. de B. Hornibrooke (1); †*C. pseudonuvell-orsotfi* Cole, subsp. n. *gigas* (p. 182), Tertiary, Italy, H. Hagn; †*C. brevaralis* sp. n. (p. 47), Tertiary, Australia, A. N. Carter; †*C. zuluensis*, *ulraensis* sp. n. (p. 78), Miocene, South Africa, P. G. Biesiot; †*C. nagaii* sp. n. (p. 59), Paleocene, Japan, K. Asano (5); †*C. temperata*, *marlboroughensis* sp. n. (p. 40), *C. sp. n. aff. deliquatus* Finlay (p. 40), [Proposal of species name deferred.] Miocene, Australia, P. Vella; †*C. (Cibicides) breshensis* sp. n. (p. 75), *C. (Cibicides) aurozeae* sp. n. (p. 76), Eocene, France, A. Rouvillois; †*C. beadnelli*, *decoratus* sp. n. (p. 23), *C. forasraensis*, *bibycus*, *pharaonis* sp. n. (p. 24), *C. zitteli* sp. n. (p. 25), Tertiary, Egypt, L. W. Le Roy; †*C. subinvolutus* sp. n. (p. 73), *C. cuvillieri* sp. n. (p. 74), Eocene, France, A. Rouvillois; †*C. arcuatus* sp. n. (p. 184), Eocene, Poland, S. Liszka (1); †*C. stephensoni* Cushman var. n. *etruscus* (p. 338), Cretaceous, Italy, T. Lipparini (2); †*C. neocompressus* Hofker and Thalmann nom. n. [for *Cibicides compressus* Hofker 1958 (non Cushman and Renz 1941)], H. E. Thalmann (3); †*C. allenii cristata* Haque nom. n. [for *Cibicides allenii* var. *carinata* Haque 1959 (non *Cibicides carinatus* (Terquem) 1882 olim, *Truncatulina carinata* Terquem 1882)], H. E. Thalmann (3); †*C. multifarius galebi* nom. n. Haque [for *Cibicides multifarius* var. *limbata* Haque (non *Cibicides subspiratus* var. *limbatus* Cita 1950)], H. E. Thalmann (3); †*C. mexicanus* Nuttall var. *derdonensis* nom. n. [for *Cibicides mexicanus* Nuttall var. *miocensis*], M. Ruscelli.

†*Clavibergella* (p. 18) subgen. n. [genotype *Hastigerinella suberectacea* Tappan 1943], F. T. Banner & W. H. Blow.

†*Codonofusiella liu* sp. n. (p. 207), *C. schubertelloides* sp. n. (p. 208), *C. tenuissima* sp. n. (p. 209), *C. minuta* sp. n. (p. 210), Permian, China, J. C. Sheng (1); †*C. japonica* n. sp. (p. 278), Permian, Japan, R. Morikawa (3); †*C. explicata* sp. n. (p. 225), Permian, Japan, N. Kuwano.

†*Conorbisvaldensis* subsp. *tomaszowiensis* (p. 86), Lower Cretaceous, Poland, J. Szejn (1).

†*Conorotalites* gen. n. (p. 434) [genotype *Glicorotalites bartensteini aptiensis* Bettenstaedt 1952], Cretaceous, Germany, M. Kaever.

- †*Coskinolina rotaliformis* sp. n. (p. 751), Tertiary, Eniwetok Atoll, W. S. Cole (2).
- †*Cribrostomoides sinaica* sp. n. (p. 886), *C. paralensis* sp. n. (p. 887), Cenomanian, Egypt, S. Omara.
- †*Cyclammina soovia* sp. n. (p. 74), Paleogene, Russia, F. V. Kipriyanova.
- †*Cyclolepedina* Whipple (1934), suppression thereof, T. F. Grimsdale (2).
- †*Cylindroclavulina colomi* sp. n. (p. 123), Tertiary, Italy, H. Hagn.
- †*Cymbalopora lecalvezae* sp. n. (p. 72), Eocene, France, A. Rouvillois.
- †*Cymbaloproetta* status thereof (p. 111), J. Hofker (22).
- †*Darbyella angulata* sp. n. (p. 129), Tertiary, Italy, H. Hagn; †*D. karatsuensis* sp. n. (p. 55), Oligocene, Japan, K. Asano (5).
- †*Daviesina voighti* sp. n. (p. 72), Cretaceous, Germany, J. Hofker (3).
- †*Dentalina filiformis* var. n. *eubstriata* (p. 121), Upper Tertiary, Italy, A. Longinelli; †*D. habra, nerrimaensis* spp. n. (p. 98), Permian, Australia, I. Crespin (1); †*D. monicana* sp. n. (p. 1302), Miocene, California, R. L. Pierce; †*D. kaicherae* sp. n. (p. 328), Miocene, Virginia, J. D. McLean (1).
- †*Discocyclina concentrica* sp. n. (p. 45); *D. hungarica* sp. n. (p. 51), Eocene, Hungary, T. Kecskeméti (2).
- †*Discorbis rehderi* sp. n. (p. 353), Miocene, Virginia, J. D. McLean (1).
- †*Discorbis (Lomelodiscorbis) magna* Vialli var. n. *aquitana* (p. 115), Eocene, France, M. Neumann & D. Boulanger.
- †*Discorbium granulo-umbilicata* sp. n. (p. 34), Quaternary, Holland, J. H. Van Voorthuysen (3).
- †*Dictyoconus saipanensis* sp. n. (p. 329), Kainozoic, Saipan Islands, W. S. Cole (1).
- †*Dorothia amakusaensis* sp. n. (p. 61), *D. nagaoi* sp. n. (p. 64), *D. sakasegawaensis* sp. n. (p. 64), Eocene, Japan, K. Asano (5); †*D. yoshinouraensis* sp. n. (p. 457), Tertiary, Japan, T. Kihara & S. Murata & M. Sugahara.
- †*Dunbarula schubertellaeformis* sp. n. (p. 270), Permian, China, J. C. Sheng (4).
- †*Dunbarinella alpina* subsp. n. *pristina* (p. 57), Permian, Yugoslavia, V. Kochansky-Devidé (4).
- †*Dyocibicides kunradensis* sp. n. (p. 125), Cretaceous, Germany, J. Hofker (18); †*D. primitiva* sp. n. (p. 41), Miocene, Australia, P. Vella.
- †*Earlandia condori* sp. n. (p. 58), Permian, Australia, I. Crespin (1).
- †*EGgerella magfiensis* sp. n. (p. 28), Tertiary, Egypt, L. W. Le Roy.
- †*Elphidiononion charlottensis* sp. n. (p. 38), *E. simplex* Cushman subsp. n. *aoteanum* (p. 38), Miocene, Australia, P. Vella.
- †*Elphidium kancharai* sp. n. (p. 18), Recent, Japan. Y. Ishiwada; †*E. iojimaense* sp. n. (p. 59), Paleogene, Japan, K. Asano (5); †*E. saitoi* sp. n. (p. 51), *E. sumitomo* sp. n. (p. 51), Oligocene, Japan, K. Asano (5); †*E. gerthi* sp. n. (p. 32), Quaternary, Holland, J. H. Van Voorthuysen (3); †*E. africanum* sp. n. (p. 28), Tertiary, Egypt, L. W. Le Roy; †*E. johnstanensis* sp. n. (p. 343), *E. kaicherae* sp. n. (p. 343), Miocene, Virginia, J. D. McLean (1); *E. discoidale* var. n. *asiaticum* (p. 585) Recent north Asiatic coast, W. Polski; †*E. noniformis* sp. n. (p. 271), Miocene, Poland, T. Smigielska; †*Elphidium (Parrellina) centrifugalis* sp. n. (p. 63), Tertiary, Australia, A. N. Carter.
- †*Entosolenia ornata* var. n. *compressa* (p. 138), *E. adriana* sp. n. (p. 139), *E. vadenis* sp. n. (p. 140), Upper Tertiary, Italy, A. Longinelli.
- †*Endothyranella cracoviensis* sp. n. (p. 157), Carboniferous, Poland, S. Liszka (2).
- †*Eofusulina inusitata* sp. n. (p. 96), Palaeozoic, China, J. C. Sheng (3).
- †*Eolepidina* Tan Sin Hok (1939), suppression thereof, T. F. Grimsdale (2).
- †*Eoparafusulina* subgen. n. (p. 262) [of *Parafusulina*] (genotype *Parafusulina gracilis* (Meek) Thomson & Wheeler) Upper Palaeozoic, America, A. H. Coogan.
- †*Eorupertiidae* fam. n. (p. 337), Kainozoic, W. S. Cole (1).
- †*Eorupertia* Yabe & Hanzawa, status thereof (p. 201), M. F. Glaessner & M. Wade (2).
- †*Eostaffella subsolana* sp. n. (p. 70), *E. quasiampila* sp. n. (p. 71); *E. intermedia* sp. n. (p. 72) Palaeozoic, China, J. C. Sheng (3).
- †*Everbeekina paklenicensis* sp. n. (p. 28), Permian, Yugoslavia, V. Kochansky-Devidé (1).
- †*Epistomina polonica* sp. n. (p. 84), Lower Cretaceous, Poland, J. Szejn (1); †*E. ornata* subsp. n., *tomaszowiensis*, (p. 84) Lower Cretaceous, Poland, J. Szejn (1); †*E. esnaensis* sp. n. (p. 29), Tertiary, Egypt, L. W. Le Roy.
- †*Epistominella nova* sp. n. (p. 669), Miocene, California, L. E. Garrison; †*E. amakusaensis* sp. n. (p. 67), Eocene, Japan, K. Asano (5); †*E. pontoni* var. n. *californica* (p. 257), Miocene, California, W. R. White; †*E. discorbisoides* sp. n. (p. 1304), Miocene, California, R. L. Pierce.
- †*Eponides*, status thereof, (p. 111), J. Hofker (22); †*E. vestensis*, *acutus* sp. n. (p. 68), Eocene, France, A. Rouvillois; †*E. nathani* sp. n. (p. 162); *E. italicus* sp. n. (p. 163), Tertiary, Italy, H. Hagn; †*E. zuluensis* sp. n. (p. 73), Miocene, South Africa, P. G. Beesiat; †*E. iojimaensis* sp. n. (p. 58), Paleogene, Japan, K. Asano (5); †*E. nagasakiensis* sp. n. (p. 58), Tertiary, Japan, K. Asano (5).

†*Eponides ? anconensis* sp. n. (p. 951), Eocene, Ecuador, J. Hofker (1).

†*Erichsenella* gen. n. (p. 19) *kegeli* sp. n. [genotype] *E. ? Martinsii* sp. n. (p. 20), Recent, Brazil, I. de M. Tinoco (2).

†*Eulepidina* Douville, 1911; suppression thereof, T. F. Grimsdale (2).

†*Fabiania cassis* (Oppenheim); status thereof, Tertiary, Japan, S. Hanzawa (2).

†*Fissurina tricostrulata* sp. n. (p. 1302), Miocene, California, R. L. Pierce.

†*Flabellaminopsis* gen. n. *planulatus* sp. n. (p. 104), *F. variabilis* sp. n. (p. 105), *F. variabilis* var. n. α (p. 106), *F. variabilis* var. n. β (p. 106), *F. variabilis* var. n. γ (p. 107), *F. crassus, corrugatus, tricarinatus* spp. n. (p. 107), *F. tricarinatus* var. n. α (p. 108), *F. tricarinatus* var. n. β (p. 108), *F. turbidus, proteus* spp. n. (p. 108), *F. tetracarinatus* sp. n. (p. 109), *F. tetracarinatus* var. n. α (p. 109), *F. diversiformis* sp. n. (p. 110), Jurassic, Poland, J. Malecki (1).

†*Flabellinella varignanoensis* sp. n. (p. 140), Tertiary, Italy, H. Hagn, †*F. jadwigae* sp. n. (p. 71), Lower Cretaceous, Poland, J. Szejn (1);

†*Flintinella* gen. n. *volhynica* sp. n. (p. 1433), [genotype], Miocene, Russia, V. Y. Didkovsky (2).

†*Fusiella typica* var. n. *sparsa* (p. 81), *F. mui, spatiosa, subtilis* spp. n. (p. 82), Palaeozoic, China, J. C. Sheng (3).

†*Fusulina weintzi* sp. n. (p. 1285), Upper Carboniferous, Nevada, G. J. Verville, M. L. Thompson, & D. H. Lokke; †*F. akiyoshiensis* sp. n. (p. 61), Pennsylvanian, Japan, R. Toriyama; †*F. fallaisensis* sp. n. (p. 799), Permian-Carboniferous, U.S.A., M. L. Thompson, G. J. Verville & D. H. Lokke; †*F. pseudochomata* nom. n. (p. 700) (for *Fusulina valida* Stewart 1958), W. J. Stewart; †*F. maijensis* sp. n. (p. 97), *F. glychensis* Rausser, var. n. *exigua* (p. 99), *F. konnoi* Lee var. n. *ordinata* (p. 100), *F. pseudokonnoi* sp. n. (p. 102), *F. pseudokonnoi* var. n. *longa* (p. 102), *F. absidata* sp. n. (p. 103), *F. pseudodontopyca* sp. n. (p. 104), *F. yangi* sp. n. (p. 106), *F. quasicylindrica* Lee var. n. *compacta* (p. 108), *F. quasicylindrica* var. n. *megasperica*, Palaeozoic, China, J. C. Sheng (3); †*F. donbassica* sp. n. (p. 175), Permian, Oklahoma, M. K. Elias.

†*Fusulinella alta* sp. n. (p. 1282), *F. nevadensis* sp. n. (p. 1283), Upper Carboniferous, Nevada, G. J. Verville, M. L. Thompson & D. H. Lokke. †*F. simplicata* sp. n. (p. 36), *F. subasperica* sp. n. (p. 52), Pennsylvanian, Japan, R. Toriyama; †*F. obesa* sp. n. (p. 91), *F. laxa, proecta* spp. n. (p. 92), Palaeozoic, China, J. C. Sheng (3).

†*Fronicularia aulax* sp. n. (p. 109), *F. hillae* sp. n. (p. 110), *F. impolita* sp. n. (p. 111), *F. limpida* sp. n. (p. 112), *F. semicostula* sp. n. (p. 113), *F. subtilis* sp. n. (p. 114), Permian, Australia, I. Crespin (1); †*F. subhunteri* sp. n. (p. 903), Eocene, Ecuador, J. Hofker (1).

†*Gaudryina africana* sp. n. (p. 30), Tertiary, Egypt, L. W. Le Roy; †*G. laevigata saadi* nom. n. Hague [for *Gaudryina laevigata elongata* Hague (non *Gaudryina*

*ruthetica elongata* Dunikowski 1879)], H. E. Thalmann (3); †*G. kishimaensis* sp. n. (p. 52), Oligocene, Japan, K. Asano (5); †*G. pervulgata* sp. n. (p. 77), *G. vulgaris* sp. n. (p. 78), Paleogene, Russia, F. V. Kipriyanova; †*G. testulariformis* sp. n. (p. 457), Paleocene, Egypt, S. E. Nakkady.

Gavelinellidae fam. n. (p. 946), Eocene, Ecuador, J. Hofker (1).

†*Gavelinopsis hamatus* sp. n. (p. 35), Miocene, Australia, P. Vella.

†*Geinitzina caseyi, striatosulcata* spp. n. (p. 116), Permian, Australia, I. Crespin (1).

†*Gifuella* gen. n. (p. 131), *gifuensis* sp. n. (p. 134), *G. amicola* sp. n. (p. 136), Permian, Japan, S. Honjo.

†*Giroliarella* gen. n. *angulata* sp. n. (p. 56), *G. tavesi* sp. n. (p. 57), *G. rhomboidalis* sp. n. (p. 58), Permian, Australia, I. Crespin (1).

†*Glabrattella becki* sp. n. (p. 668), Miocene, California, L. E. Garrison.

†Globigerinidae Carpenter, nom. correct. (p. 5), F. T. Banner & W. H. Blow.

†Globigerininae Carpenter 1862 nom. transl. (p. 5), F. T. Banner & W. H. Blow.

†Globigerinaceae Carpenter 1862, emend. (p. 4), F. T. Banner & W. H. Blow.

†*Globigerina paravenezuelana* sp. n. (p. 953); *G. protoreticulata* sp. n. (p. 954); *G. staineri*, *pseudocretacea* spp. n. (p. 955); *G. paratriloculinoides* sp. n. (p. 956); Eocene, Ecuador, J. Hofker (1); †*G. kugleri* sp. n. (p. 270), Cretaceous, Trinidad, H. M. Bolli (2); †*G. eamesi* sp. n. (p. 176); *G. falconensis* sp. n. (p. 177); *G. parabulloidis* sp. n. (p. 179); *G. praebulloidis* sp. n. (p. 180), Miocene, Venezuela, W. H. Blow; †*G. kyushuensis* sp. n. (p. 68), Eocene, Japan, K. Asano (5); †*G. nipponica* sp. n. (p. 18), Recent, Japan, K. Asano (3); †*G. aequatorialis* Hofker & Thalmann nom. n. [for *Globigerina staineri* Hofker 1956 (non Bronnmann 1952)], H. E. Thalmann (3); †*G. esnaensis* sp. n. (p. 31), Tertiary, Egypt, L. W. Le Roy; †*G.* status thereof, J. Hofker (21).

†*Globigerinoides macrostoma* sp. n. (p. 173), Tertiary, Italy, H. Hagn; †*G. bollii* sp. n. (p. 189), Miocene, Venezuela, W. H. Blow; †*G. dinapoli* sp. n. [nom. nud.] (p. 98), Tertiary, Italy, L. Ogniben (1); †*G. dinapoli* sp. n. (p. 237), Tertiary, Italy, L. Ogniben (2).

†Globobuliminidae fam. n. (p. 908), Eocene, Ecuador, J. Hofker (1).

†*Globobulimina pacifica* var. n. *curtata* (p. 254), Pliocene, California, W. R. White; †*G. hanzawa* sp. n. (p. 10), Recent, Japan, K. Asano (4).

†*Globoquadrina pozonensis* sp. n. (p. 184), Miocene, Venezuela, W. H. Blow.

†Globorotaliinae Cushman 1927 emend. (p. 6), F. T. Banner & W. H. Blow.

†*Globorotalia zealandica* sp. n. (p. 667), Tertiary, New Zealand, N. de B. Hornibrook (1); †*G. quadrata* sp. n. (p. 462), Paleocene, Egypt, S. E. Nakkady; †*G. scitula* subsp. n. *ventriosa* (p. 246), Tertiary, Italy, L. Ogniben (2); †*G. scitula* subsp. n. *ventriosa* (p. 94) [nom. nud.], Tertiary, Italy, L. Ogniben (1); †*G. crystalriverensis* sp. n. (p. 124), Eocene, Florida, H. S. Puri (3); †*G. Cushman* 1927 emend. (p. 15), F. T. Banner & W. H. Blow; †*G. (Hastigerinella) digitata* (Brady) emend. (p. 16), F. T. Banner & W. H. Blow; †*G. acostaensis* sp. n. (p. 208); †*G. birnagae* sp. n. (p. 210); †*G. opima* subsp. n. *continua* (p. 218); †*G. scitula* subsp. n. *gigantea* (p. 220); †*G. scitula* subsp. n. *praecitula* (p. 221), Miocene, Venezuela, W. H. Blow.

†*Globotruncana helvetica* included in *Praglobotruncana* Bermudez 1952, V. Scheibner; †*G. kupperi* nom. n. Thalmann [for *Globotruncana* (*Praglobotruncana*) *renzi* subsp. *primitiva* Kupper 1956 (non *Globotruncana* (*Globotruncana*) *ventriosa* var. Dalbicz 1955)], H. E. Thalmann (3).

†*Glomospira monogranula* sp. n. (p. 847), Carboniferous, U.S.A., H. A. Ireland; †*G. sinensis* sp. n. (p. 396); †*G. sinensis* var. n. *rara* (p. 396); †*G. tenuifistula* sp. n. (p. 397), Trias, China, Y. Ho (1).

†*Glomospirella shengi, vulgaris* spp. n. (p. 399), *G. facilis* sp. n. (p. 400), Trias, China, Y. Ho (1); †*G. nyei* sp. n. (p. 70), Permian, Australia, I. Crespin (1).

†*Goupillaudina* gen. n. (p. 861) *daguini* sp. n. (p. 863) (genotype); †*G. leointrei* sp. n. (p. 864); †*G. intermedia, ostrowskyi* spp. n. (p. 866); †*G. debourlei* sp. n. (p. 868); †*G. sanctipetri* sp. n. (p. 869), Cretaceous, P. Marie.

†*Granuliferella pauciseptata* sp. n. (p. 257), Lower Carboniferous, Japan, Y. Okimura.

†*Grimsdaleinella* gen. n. (p. 1) *spinosa* sp. n. (p. 2), Cretaceous, H. M. Bolli (1).

†*Gumbelina* sp. n. (p. 259) [nom. nud.], Cretaceous, N. Africa, R. Rivoirard & J. Sigal.

†*Guttulina palmerae* sp. n. (p. 333); †*G. pseudocostata* sp. n. (p. 334), Miocene, Virginia, J. D. McLean (1).

*Gymnesina* gen. n. (p. 16) *glomerosa* sp. n. (p. 16) (genotype), Recent, Mediterranean, G. Colom (2).

†*Gyroidina aegyptica* sp. n. (p. 459), Paleocene, Egypt, S. E. Nakkady; †*G. keenani* var. n. *murieta* (p. 1305), Miocene, California, R. L. Pierce; †*G. crystalriverensis* sp. n. (p. 124), *G. springfieldensis* sp. n. (p. 125), Eocene, Florida, H. S. Puri (3); †*G. girardana sarvari* nom. n. Haque [for *Gyroidina* var. *limbata* Haque (non *Gyroidina limbata* Hussey 1949)], H. E. Thalmann (3); †*G. iijimaensis* sp. n. (p. 59), Paleocene, Japan, K. Asano (5); †*G. sakasegawaensis* sp. n. (p. 67), Eocene, Japan, K. Asano (5); †*G. sechibaensis* sp. n. (p. 457), Tertiary, Japan, T. Kihara & S. Murata & M. Sugahara.

†*Halyphysma*, status thereof, A. R. Loeblich Jr.; †*H. bayeri* sp. n. (p. 125), *H. baryi* sp. n. (p. 116), Recent, Pacific, A. R. Loeblich Jr.

†*Hantkeninidae* Cushman 1927 emend. (p. 7), F. T. Banner & W. H. Blow.

†*Hantkeninae* Cushman 1927 emend. (p. 9), F. T. Banner & W. H. Blow.

†*Hanzawaisa sunitomoi* sp. n. (p. 52), Oligocene, Japan, K. Asano (5).

†*Haplophragmium giganteum* sp. n. (p. 73), Upper Cretaceous, Turkey, V. Öztumur.

†*Haplophragmoides rudis* sp. n. (p. 285), *H. formosum* sp. n. (p. 287), Cretaceous, Minnesota, E. J. Bolin (2); †*H. amakusaensis* sp. n. (p. 61), *H. shikiyamaensis* sp. n. (p. 61), Eocene, Japan, K. Asano (5); †*H. desertorum* sp. n. (p. 36), Tertiary, Egypt, L. W. Le Roy; †*H. circularis* sp. n. (p. 44), Jurassic, Egypt, R. Said & M. G. Barakat; †*H. appenninica* sp. n. (p. 132), *H. foliacea* sp. n. (p. 133), Cretaceous, Italy, E. Montanaro Gallitelli (1); †*H. haeculteri* sp. n. (p. 314), Jurassic, England, A. J. Lloyd.

†*Hastigerinella* Cushman 1927 emend. (p. 15), F. T. Banner & W. H. Blow.

†*Hastigerininae* Bolli, Loeblich & Tappan 1957, emend. (p. 7).

†*Hastigerina* Thomson 1876, emend. (p. 12), F. T. Banner & W. H. Blow.

†? *Hastigerinoides alpina* sp. n. (p. 74), Eocene, France, J. Sigal (4).

†*Hayasakaina kawadai* sp. n. (p. 173), Permian, Japan, H. Igo (2); †*H. kawadai* sp. n. (p. 46), Permian, Japan, H. Igo (1).

†*Hedbergella* Brown & Brown 1958, emend. (p. 17), F. T. Banner & W. H. Blow; †*H. status* thereof (p. 15), B. H. Burma (1).

†*Hedbergina*, status thereof (p. 15), B. H. Burma (1).

†*Helicocyclina* Tan Sin Hole 1936, suppression thereof, T. F. Grimsdale (2).

†*Helicostegina* Barker & Grinis 1936, suppression thereof, T. F. Grimsdale (2).

†*Hemicristellaria okinoshimaensis* sp. n. (p. 57), Tertiary, Japan, K. Asano (5); †*H. karatsuensis* sp. n. (p. 53), Oligocene, Japan, K. Asano (5); †*H. hanzawai* sp. n. (p. 10), *H. gotoensis, tosaensis, toshimaensis*, spp. n. (p. 11), Recent, Japan, K. Asano (1).

†*Herronallenia parii* sp. n. (p. 43), Tertiary, Australia, A. W. Carter.

†*Heterohelix distorta* sp. n. (p. 145), Cretaceous, Italy, E. Montanaro Gallitelli (1).

†*Heterostegina complanata* var. n. *minuta* (p. 73), Tertiary, East Africa, A. Azaroli; †*H. aequatoria* sp. n. (p. 756), *H. duplicamera* sp. n. (p. 759), Tertiary, Eniwetok Atoll, W. S. Cole (2).

†*Hexaspyris papilio* sp. n. (p. 294), Tertiary, Pacific, W. R. Riedel (2).

- †*Hippocrepinella biaparta* sp. n. (p. 37), Permian, Australia, I. Crespin (1).
- †*Hofkerina* Howchin & Parr, status thereof (p. 203), M. F. Glaessner & M. Wade (2).
- †*Hopkinsina acuto-costata* sp. n. (p. 151), *H. citae* sp. n. (p. 152), Tertiary, Italy, H. Hagn.
- †*Hyperammina cowiniana* sp. n. (p. 73), Devonian, Poland, S. Duszynska (3); †*H. compacta* sp. n. (p. 235), *H. constricta*, *gracilenta* spp. n. (p. 237), *H. nitida*, *rockfordensis* spp. n. (p. 238), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman; †*H. collytharrensensis* sp. n. (p. 45), *H. fletcheri* sp. n. (p. 50), *H. justa*, *hadzeli* spp. n. (p. 51), *H. hebdensis* sp. n. (p. 52), Permian, Australia, I. Crespin (1).
- †*Hyperamminita* gen. n. (p. 54) [genotype *Hyperammina rudis* Parr 1942], Permian, Australia, I. Crespin (1).
- †*Iberina* loc. c. Munier I. *lusitanica* (Egger) emend. thereof (p. 41), W. Mayne (2); †*Chalmas* 1902 emend. thereof (p. 39), W. Mayne (3).
- †*Involutina longexortis* sp. n. (p. 241), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman.
- †*Isorbitina* Thalmann 1938, status thereof, T. F. Grimsdale & I. M. Van der Vlerk; †*I.* Thalmann 1938, suppression thereof, T. F. Grimsdale (2).
- †*Jaculella*, status thereof, T. Barnard (2).
- †*Karrerria fallax*, status thereof (p. 413), M. Sido (2).
- †*Lachlanella* subgen. n. (of *Quinqueloculina*) (p. 24), Miocene, Australia, P. Vella.
- †*Lacosteina maguawilensis* sp. n. (p. 128), Cretaceous, Egypt, S. E. Ansary & B. Y. Faklir; †*L.*, status thereof, (p. 111), J. Hofker (22).
- †*Lagena sulcatiformis* sp. n. (p. 115), Cretaceous, Poland, K. Pozaryska & A. Urbanek; †*L. subamphora* sp. n. (p. 38), Recent, Japan, K. Asano (1), †*L. stricto-punctata* var. n. *pentacosta* (p. 1382), Miocene, California, R. L. Pierce; †*L. ofantina* sp. n. (p. 615), Tertiary, Italy, M. Zei Moncharmont; †*L. (Entosolenia) carteri*, sp. n. (p. 330), *L. (Entosolenia) carteri forma alpha* (p. 330), *L. dorseae* sp. n. (p. 330), *L. globulohispida*, sp. n. (p. 331), *L. Palmerae*, *pseudosulcata* spp. n. (p. 332) [unusual systematics], Miocene, Virginia, J. D. McLean (1); †*L. biarrizensis* nom. n. (p. 142) (for *Lagena striato-punctata* var. *caudata* Halkyard), W. Hagn; †*L. alcocki* nom. n. (p. 246) [for *Lagena williamsoni* Wright 1876-7 and *Entosolenia williamsoni* Alcock 1865 (non *L. williamsoni* of Harvey & Bailey 1854)] Pliocene, California, W. R. White; †*Lagenonodosaria acostaensis* sp. n. (p. 122), Miocene, Venezuela, W. H. Blow.
- †*Lamarckina airensis* sp. n. (p. 65), Tertiary, Australia, A. N. Carter.
- †*Lenticulina krzyzanowiensis* sp. n. (p. 37), Lower Cretaceous, Poland, J. Szejn (1); †*L. (Astacolus) initialis* sp. n. (p. 96), Permian, Australia, I. Crespin (1);
- †*Lepidocyclinidae*; generic analysis, T. F. Grimsdale (2).
- †*Lepidocyclina* (*Nephrolepidina*) *pusilla* sp. n. (p. 77) *L. (Eulepidina) contorta* sp. n. (p. 79), *L. (Eulepidina) sphynx* sp. n. (p. 80), *L. (Multilepidina) palustris* sp. n. (p. 81), Tertiary, East Africa, A. Azzaroli; †*L. ecuadorensis* sp. n. (p. 938) Eocene, Ecuador, J. Hofker (1).
- †*Lepidolina kumaensis* sp. n. (p. 362), †*L. toriyamai* sp. n. (p. 362), Permian, Japan, K. Kanmera (1).
- Lepidorbitoides rocalis* sp. n. (p. 137) [nom. nud.], Upper Cretaceous, Germany, A. Papp (2).
- †*Linderina visserae* sp. n. (p. 126), Cretaceous, Germany, J. Hofker (10).
- †*Lingulina ocalana* sp. n. (p. 114), Eocene, Florida, H. S. Puri (3).
- †*Loxostomum wilsoni* sp. n. (p. 348), Miocene, Virginia, J. D. McLean (1); †*L. tavanii*, *adrianae* spp. n. (p. 162), Upper Tertiary, Italy, A. Longinelli; †*L. pakaurangiensis* sp. n. (p. 659), Tertiary, New Zealand, N. de B. Hornibrook (1).
- †*Lugtonia thomasi* sp. n. (p. 65), Permian, Australia, I. Crespin (1); †*L. concinna* var. n. *minima* (p. 80), Lower Carboniferous, Russia, E. V. Fomina.
- †*Margulinina carri* sp. n. (p. 38), Tertiary, Egypt, L. W. Le Roy, †*M. shikiyamaensis* sp. n. (p. 65), Eocene, Japan, K. Asano (5), †*M. costulata* sp. n. (p. 66), Cretaceous, Germany, J. Hofker (7).
- †*Margulinopsis capistranoensis* sp. n. (p. 246), Pliocene, California, W. R. White.
- †*Marssonella traubi* sp. n. (p. 118), Tertiary, Italy, H. Hagn.
- †*Martiguesia* gen. n. (p. 21) *cyclamminiformis*, sp. n. (p. 22), Cretaceous, France, W. Mayne (5).
- †*Maslinella* gen. n. *chapmani* sp. n. (p. 202), (genotype), Eocene, M. F. Glaessner & M. Wade (2).
- †*Masilina quadrans* subsp. n. *carteri* (p. 325), Miocene, Virginia, J. D. McLean (1); †*M. dorseiensis* sp. n. (p. 286), Jurassic England, R. Cifelli.
- †*Miliolina czestochowiensis* sp. n. (p. 360), *M. rawiensis* sp. n. (p. 367), Jurassic, Poland O. Pazdrowa (2).
- †*Miliolinella vigilax* sp. n. (p. 21), Miocene, Australia, P. Vella.
- †*Millerella minuta* sp. n. (p. 70), Palaeozoic, China, J. C. Sheng (3).
- †*Milletella rotunda* sp. n. (p. 17), Recent, Japan, Y. Ishiwada.
- †*Minoella* subgen. n. (p. 124) [of *Neoschwagerina*], *conipponica* sp. n. (p. 127), Permian, Japan, S. Honjo.
- †*Misellina ibukiensis* sp. n. (p. 297), Permian, Japan, M. Kobayashi.
- †*Moravammina carbonica* sp. n. (p. 80), Lower Carboniferous, Russia, E. V. Fomina.
- †*Multilepidina* Hanzawa 1932, suppression thereof. T. F. Grimsdale (2).



†*Neobulimina farafraensis* sp. n. (p. 39), Tertiary, Egypt, L. W. Le Roy, †*N. khargensis* sp. n. (p. 458), Paleocene, Egypt, S. E. Nakkady.

†*Neocarpentaria irregularis* sp. n. (p. 376), Tertiary, Assam, B. K. Ghose; †*N. chemensis* sp. n. (p. 35), Quaternary, Holland, J. H. Van Voorthuysen (3); †*Neoclavalina* gen. n. *robusta* sp. n. (p. 106), Eocene, Florida, H. S. Furi (3).

†*Neolepidina* Bronimann 1946, status thereof, T. F. Grimsdale & I. M. Van der Vlerk.

†*Neorbitolites complexa* gen. n. sp. n. (p. 376), Tertiary, Assam, B. K. Ghose.

†*Neoplenoroplis* gen. n. [genotype *Peneroplis perustus*] Tertiary, (p. 327), Y. Y. Didkovsky (1).

†*Neoschwagerina cheni* sp. n. (p. 274); *N. cheni* var. n. *hsinghaiana* (p. 275), Permian, China, J. C. Sheng (4). †*N. irregularis* sp. n. (p. 146), Permian, Japan, S. Honjo. †*N. bukowski* sp. n. (p. 65); *schuberti* sp. n. (p. 68), Permian, Yugoslavia, V. Kochansky-Devidé (4). †*N. megaspherica* Deprat subsp. n. *miyanoensis* (p. 226), Permian, Japan, M. Kuwano. †*N. bukowski* sp. n. (p. 26) nom. nud.; *N. schuberti* sp. n. (p. 26) nom. nud., Permian, Yugoslavia, V. Kochansky-Devidé (3).

†*Nephrolepidina chavarana* sp. n. (p. 347), Miocene, India, V. V. Sastri & K. Jacob. †*N. Douville* 1911; suppression thereof. T. F. Grimsdale (2). †*N. Douville* 1911, status thereof. T. F. Grimsdale & I. M. van der Vlerk.

†*Nezzazata* gen. n. (p. 887) *simplex* sp. n. (p. 889) (genotype); Cenomanian, Egypt, S. Omara.

†*Nipponitella ussuriica* sp. n. (p. 4), Permian-Carboniferous, Russia, A. D. Mikinkho Maklai (1).

†*Nodosarella pliocenica* sp. n. (p. 50), Pliocene, Portugal, G. S. de Carvalho & G. Colom.

†*Nodosaria tereta* sp. n. (p. 99) *N. crassula*, *decoris* sp. n. (p. 101); *N. fisheri* sp. n. (p. 102); *N. spiculata* sp. n. (p. 105), *N. raggatti* sp. n. (p. 104), Permian, Australia, I. Crespin (1). †*N. okinoshimaensis* sp. n. (p. 57), Tertiary, Japan, K. Asano (5). †*N. tomaszowiensis* sp. n. (p. 63), Lower Cretaceous, Poland, J. Szejn (1). †*N. loeblichae* subsp. n. *kerzyszanoviensis* (p. 52), Lower Cretaceous, Poland, J. Szejn (1). †*N. semispinosa* sp. n. (p. 41), Tertiary, Egypt, L. W. Le Roy.

†*Nonion pompilioides* Fichtel & Moll *shimokinense* sp. n. (p. 71), Oligocene, Japan, K. Asano (5). †*N. ariakeense* sp. n. (p. 54), Oligocene, Japan, K. Asano (5). †*N. crassicosturatus* sp. n. (p. 28), Tertiary, Belgium, J. H. van Voorthuysen (4). †*N. depressulus* (Walker & Jacob) forma. n. *asterotuberculatus* (p. 28), Quaternary, Holland, J. H. van Voorthuysen (3). †*N. flemingi* sp. n. (p. 37), Miocene, Australia, P. Vella. †*N. pseudoboueanum* sp. n. (p. 81), Tertiary, North Africa, J. Magné (1). †*N. brunatus* nom. n. (p. 941) (for *Planulina chirana* Cushman & Stone 1947); *N. stainforthi* nom. n. (p. 942) (for *N. equadorum* Cushman & Stainforth 1951); Eocene, Ecuador, J. Hofker (1).

†*Nonionella limbato-striata* var. n. *evoluta* (p. 668) Miocene, California, L. E. Garrison. †*N. excavata thalmanni* nom. n. Haque [for *Nonionella excavata nammalensis* Haque (non *Nonionella cretacea nammalensis* Haque)], H. E. Thalmann (3). †*N. davanaensis* sp. n. (p. 1303), Miocene, California, R. L. Pierce. †*N. minuta* sp. n. (p. 157), Pleistocene, Egypt, R. Said & N. A. Basiouni. †*N. africana* sp. n. (p. 42), Tertiary, Egypt, L. W. Le Roy.

†*Notorotalia wilsoni*, sp. n. (p. 660); *N. aranea* sp. n. (p. 662), Tertiary, New Zealand, N. de B. Hornibrook (1). †*N. crassimura* sp. n. (p. 64), Tertiary, Australia, A. N. Carter. †*N. depressa* sp. n. (p. 47); *N. taranakia*, *profunda* spp. n. (p. 48); *N. hurupiensis*, *finlayi* spp. n. (p. 49); *N. olsoni*, *kingmai* spp. n. (p. 50); *N. pristina* sp. n. (p. 51); *N. inornata*, *pliozea* spp. n. (p. 54); *N. zelandica mangaoparia* subsp. n. (p. 55); *N. zelandica rotunda* subsp. n. (p. 56); *N. aucklandica* sp. n. (p. 56), New Zealand, P. Vella.

†*Nummofallotia* gen. n. (p. 228), (genotype *Nonionina cretacea* Schlumberger 1899), J. Barrier & M. Neumann.

†*Nummoloculina dolianitii* sp. n. (p. 19), Recent, Brazil, I. de M. Tinoco (2).

†*Nummulites hyalina* sp. n. (p. 933), Eocene, Ecuador, J. Hofker (1). †*N. globulus* Davies var. n. *minor*; *N. incrassata* var. n. *minuta*; *N. nuttalli* var. n. *cherrapunjiensis*; *N. dasgupti* sp. n. (p. 376), Tertiary, Assam, B. K. Ghose. †*N. retiatius* Roveda 1959 [included as synonym in *N. fabianii* (Prever.)] F. E. Eames, W. J. Clarke & F. J. Banner. †*N. retiatius* sp. n. (p. 201), Oligocene, Italy, V. Roveda. †*Nuttallinella* nom. n. (p. 20) [for *Nuttallina* Belford 1958 non Dall 1871], D. J. Belford.

†*Nuttallides* status thereof, (p. 111), J. Hofker (22).

†*Oketaella lenensis* sp. n. (p. 798); *O. osurensis* sp. n. (p. 799), Permian-Carboniferous, U.S.A., M. L. Thompson, G. J. Verville & D. H. Lokke. †*O. takahashii* sp. n. (308); *O. shiroishiensis* sp. n. (p. 310), Lower Permian, Japan, R. Morikawa & N. Kobayashi.

†*Operculina malabarica* sp. n. (p. 345), Miocene, India, V. V. Sastri & K. Jacob. †*O. eniwetokenensis* sp. n. (p. 75<sup>f</sup>), Tertiary, Eniwetok Atoll, W. S. Cole (2). †*O. africana* sp. n. (p. 72), Tertiary, East Africa, A. Azzaroli.

†*Operculinella lawricana* sp. n. (p. 343), Miocene, India, V. V. Sastri & K. Jacob.

†*Operculinoides*; systematics thereof, W. S. Cole (4). †*O. saipanensis* sp. n. (p. 331), Kainozoic, Saipan Islands, W. S. Cole (1) †*O. Hanzawa* 1935; status thereof, Y. Nagappa (2).

†*Opertorbitolites nuttalli* sp. n. (p. 376), Tertiary, Assam, B. K. Ghose.

†*Ophthalmidium carinatum* subsp. n. *terquemi* (p. 114); *O. carinatum* subsp. n. *porai* (p. 120); *O. carinatum* subsp. n. *agglutinans* (p. 121), Jurassic, Poland, O. Pazdrowa (1).

- †*Orbitoides media* sp. n. (p. 138) [nom. nud.], Upper Cretaceous, Germany, A. Papp (2)
- †*Orbitoina* Van der Geyn & Van der Vlerk 1935, status thereof, T. F. Grimsdale & I. M. Van der Vlerk.
- †*Orbulininae* Schultze 1854 nom. transl. (p. 4), F. T. Banner & W. H. Blow.
- †*Orbulina* status thereof, J. Hofker (21). †*O. cornwallisi* sp. n. (p. 365), Miocene, Virginia, J. D. McLean (1).
- †*Ozawainella turgida* sp. n. (p. 72); *O. magna* sp. n. (p. 74); *O. tingi* var. n. *minima* (p. 74), Palaeozoic, China, J. C. Sheng (3).
- †*Palaeofusulina minima* sp. n. (p. 208); †*P. simplex* sp. n. (p. 208), Upper Palaeozoic, China, L. H. Chang & J. C. Sheng.
- †*Palmerinella raai* sp. n. (p. 658), Miocene, Western India, S. R. Bhatia & K. Mohan.
- †*Palmula appendicifera* sp. n. (p. 243), Miocene, Hungary, M. R. Nyiro (1).
- †*Parafusulina apiculata* sp. n. (p. 785); *P. communis* sp. n. (p. 786); *P. shakagagensis* var. n. *crassimarginata* (p. 787); *P. superlata*, *sublinearis* spp. n. (p. 790); Permian, Nevada, R. L. Knight. †*P. sisakai* sp. n. (p. 52), Permo Carboniferous, Japan. H. Igo & K. Ozawa. †*P. matsubaishi* sp. n. (p. 158), Permian, Japan, H. Fujimoto. †*P. (Parafusulina) nosonensis* Thomson & Wheeler emend; nov. emend. (p. 269), Upper Palaeozoic, A. H. Coogan. †*P. gigas* sp. n. (p. 293) Permian, Japan, M. Kobayashi. †*P. japonica* var. n. *kinshoensis* (p. 114); *P. undata* sp. n. (p. 115); *P. truncata* Ozawa emended Morikawa (p. 116); *P. okuboensis* Ozawa emended Morikawa (p. 117); *P. taniyashikiensis* spp. n. (p. 120); *P. mizutani* sp. n. (p. 121); *P. tomeganiensis* sp. n. (p. 122); *P. kawati* sp. n. (p. 124), Permian, Japan, K. Morikawa (2).
- †*Paralla desertorum* sp. n. (p. 43), Tertiary, Egypt, L. W. Le Roy.
- †*Paraplectogyra* gen. nov. (p. 254) *masanae* sp. n. (genotype) (p. 255); *P. longiseptata*, *gigantea* spp. n. (p. 256), Lower Carboniferous, Japan, Y. Okimura.
- †*Paraschwagerina plena* sp. n. (p. 310), Permian, Texas, C. A. Ross. †*P. shimodakensis* sp. n. (p. 181), Lower, Permian, Japan, K. Kanmera (3).
- †*Parrelloididae* fam. n. (p. 936); Eocene, Ecuador, J. Hofker (1).
- †*Parrelloides* gen. n. (p. 936) (genotype *Cibicides hyalinus* Hofker 1951), Eocene, Ecuador, J. Hofker (1).
- †*Parvigenerina* gen. n. (p. 18) [genotype—*Bifarina porrecta* (Brady) var. *arenacea* Heron Allen and Earland], P. Vella.
- †*Pelosina ampulla* sp. n. (p. 42), Permian, Australia, I. Crespin (1).
- †*Pernerina crassa* sp. n. (p. 79), Paleogene, Russia, F. V. Kipriyanova.
- †*Phyllopsammima* gen. n. *adanula* sp. n. (p. 503), Miocene, Poland, J. Malecki (2).
- †*Pileolina radiata* sp. n. (p. 36) *P. zealandica* sp. n. (p. 37), Miocene, Australia, P. Vella.
- †*Pisolina subphaerica* sp. n. (p. 205), Permian, China, J.-C. Sheng (1).
- †*Plaeopsilina wooremelensis* sp. n. (p. 94), Permian, Australia, I. Crespin (1).
- †*Plaeoglobotruncana crassa* sp. n. (p. 265); *P. modesta*, *rohri*, sp. n. (p. 267), Cretaceous, Trinidad, H. M. Bolli (2).
- †*Planoendothyra turbanica* sp. n. (p. 26), Carboniferous, Russia, O. I. Boghush & O. V. Yeferev.
- †*Planoglobulina meyerhoffi* sp. n. (p. 122), Cretaceous, Cuba, G. A. Seiglie.
- †*Planomalinae* Bolli, Loeblich & Tappan 1957, emend (p. 8), F. T. Banner & W. H. Blow.
- †*Planomalina blowi* sp. n. (p. 260); *P. maridaleensis* sp. n. (p. 162); *P. saundersi* sp. n. (p. 262), Cretaceous, Trinidad, H. M. Bolli (2).
- †*Planorbulina* status thereof (p. 111), J. Hofker (22).
- †*Planorbulinella johannes* sp. n. (p. 56), Tertiary, Australia, A. W. Carter.
- †*Planula hendrickensis* sp. n. (p. 122), Eocene, Florida, H. S. Puri (3).
- †*Planularia krzyzanowiensis* sp. n. (p. 42), Lower Cretaceous, Poland, J. Szejn (1).
- †*Plectina shimokinensis* sp. n. (p. 71), Oligocene, Japan, K. Asano (5).
- †*Plectofrondicularia nogataensis* sp. n. (p. 65), Eocene, Japan, K. Asano (5). †*P. carpathica* sp. n. (p. 172), Eocene, Poland, S. Liszka (1).
- †*P. ? inglisiana* sp. n. (p. 118), Eocene, Florida, H. S. Puri (3).
- †*Plectogyra chernyshinelliformis* sp. n. (p. 123); *P. c. var. n. concavacamerata* (p. 124); *P. brevivoluta* sp. n. (p. 124); *P. volgensis* sp. n. (p. 125); *P. piluginensis* sp. n. (p. 126), Tournaisian, Russia, O. A. Lipina (2). †*P. baidjansica* sp. n. (p. 20), *P. rectiformis* sp. n. (p. 21); *P. orgailysaica*, *zakharovi* spp. n. (p. 23); *P. belmasarica*, *turkestanica* spp. n. (p. 24), *P. menneri* sp. n. (p. 25), Carboniferous, Russia, O. I. Boghush & O. V. Yeferev.
- †*Pileopidina* Douville 1915; suppression thereof, T. F. Grimsdale (2).
- †*Pliorbitoina* Van der Geyn & Van der Vlerk 1935, status thereof, T. F. Grimsdale & I. M. Van der Vlerk.
- †*Plummerinella kimberleyensis* sp. n. (p. 85), Permian, Australia, I. Crespin (1).
- †*Polydiezodina darvasica* subsp. n. *oogdiana* (p. 4), Permo-Carboniferous, Russia, A. D. Miklukho-Maklai (1).
- †*Polylepidina* Vaughan 1924; suppression thereof, T. F. Grimsdale (2).

†*Polyorbotoina* Van der Geyn & Van der Vlerk 1935; suppression thereof, T. F. Grimsdale (2).  
†*P. Van der Geyn & Van der Vlerk* 1935, status thereof, T. F. Grimsdale & I. M. Van der Vlerk.

†*Praeglobotruncana* Bermudez 1952, emend (p. 17), F. T. Banner & W. H. Blow.

†*Procerolagena* gen. n. (p. 103) [genotype *P. gracilis*, Williamson], Miocene, Florida, H. S. Puri (2).

†*Profusulinella kentuckyensis* sp. n. (p. 776), Pennsylvanian, Illinois, U.S.A. M. L. Thompson, R. H. Shaver & E. A. Riggs. †*P. beppensis* sp. n. (p. 31), Pennsylvanian, Japan, R. Toriyama. †*P. wangyui* sp. n. (p. 85); *P. wangyui* var. n. *yentaiensis* (p. 85), Palaeozoic, Japan, J. C. Sheng (3).

†*Proreophax* gen. n. *assamica* sp. n. (p. 376); *P. elongata* sp. n. (p. 376), Tertiary, Assam, B. K. Ghose.

†*Protonina*, status thereof, T. Barnard (2). †*P. conferrus* sp. n. (p. 306), Jurassic, England, A. J. Lloyd. †*P. arenosa* sp. n. (p. 38), Permian, Australia, I. Crespin (1).

†*Protriticites* gen. n. (p. 172), *globulus* sp. n. (p. 173), Permian, Oklahoma, M. K. Elias. †*P. rarus* sp. n. (p. 95); *P. niumaolingensis* sp. n. (p. 96), Palaeozoic, China, J. C. Sheng (3).

†*Pseudarcella* Spandel 1909, revision thereof, (p. 88); *P. feuguereri* sp. n. (p. 90), *P. companula* sp. n. (p. 91), Eocene, France, Y. Le Calvez (2).

†*Pseudastrophiza delicata* sp. n. (p. 231), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman.

†*Pseudochrysalidina eniwetokensis* sp. n. (p. 751), Tertiary, Eniwetok Atoll, W. S. Cole (2).

†*Pseudoclavulina forasfransensis* sp. n. (p. 44), *P. magliensis* sp. n. (p. 44), Tertiary, Egypt, L. W. Le Roy.

†*Pseudocyclammina vasconica* sp. n. (p. 180); *P. massiliensis* sp. n. (p. 184), Cretaceous, France, W. Mayne (7).

†*Pseudodololima chinghaiensis* sp. n. (p. 273), Permian, China, J. C. Sheng (4). †*P. ozawai* subsp. n. *minima* (p. 5), Permian-Carboniferous, Russia, A. D. Miklukho-Maklai (1).

†*Pseudofusulina diptlethecalis* sp. n. (p. 46), Permian, Japan, H. Igo (1). †*P. septis* sp. n. (p. 280); *P. uenoensis* sp. n. (p. 282), Permian, Japan, M. Kobayashi. †*P. lativentrata* sp. n. (p. 784), Permian, Nevada, R. L. Knight. †*P. aratanienensis* sp. n. (p. 226), Permian, Japan, N. Kuwano. †*P. duplithicata* sp. n. (p. 171), Permian, Japan, H. Igo (2). †*P. horrida* sp. n. (p. 196); *P. kumasoana* sp. n. (p. 199), Lower Permian, Japan, K. Kanmera (3). †*P. motoyoshiensis*, *iwazakiensis*, *hashigamiensis*, *paratachernyschevi*, *kuyoharai*, *paramotohashii* sp. n. (p. 85); *P. paramotohashii* var. n. *oyaensis*, Upper Palaeozoic, Japan, R. Morikawa. †*P. hashigamiensis* sp. n. (p. 281). *P. motoyoshiensis* sp. n. (p. 283); *P. paramotohashii* sp. n. (p. 284);

*P. oyensis* sp. n. (p. 285); *P. kuzoharai* sp. n. (p. 286); *P. kisamatoui* sp. n. (p. 287); *P. kikuchii* sp. n. (p. 288); *P. iwazakiensis* sp. n. (p. 290), Permian, Japan, R. Morikawa (3). †*P. confraige* sp. n. (p. 101), Permian, Japan, R. Morikawa (2).

†*Pseudoglandulina japonica* sp. n. (p. 44), Recent, Japan, K. Asano (1).

†*Pseudohastigerina* gen. n. (p. 19) (genotype *Nonion micrus* Cole 1927), F. T. Banner & W. H. Blow.

†*Pseudohyperammina* gen. n. *radiostoma* sp. n. (p. 55), Permian, Australia, I. Crespin (1).

†*Pseudolituonella*, status thereof (p. 95), Cretaceous, Israel. Z. Reiss (2).

†*Pseudononion kishimaense* sp. n. (p. 50), Oligocene, Japan, K. Asano (5).

†*Pseudopalmula polonica* sp. n. (p. 83), Devonian, Poland, S. Duszynska (3).

†*Pseudoparrella barnwelli* sp. n. (p. 75), Miocene, South Africa, P. G. Biesiot.

†*Pseudopolymorphina tortuosa* sp. n. (p. 30), Miocene, Australia, P. Vella. †*P. brimontensis* sp. n. (p. 61), Eocene, France, A. Rouvillois.

†*Pseudozbittoides* (?) *chubbi* sp. n. (p. 424) Cretaceous America, P. Brönnimann.

†*Pseudoruttenia* gen. n. (p. 92), *diadematoidea* sp. n. (p. 92), (genotype), Eocene, France, Y. Le Calvez (2).

†*Pseudoschwagerina minatori* sp. n. (p. 179), Lower Permian, Japan, K. Kanmera (3). †*P. miharanoensis* sp. n. (p. 153), Permian, Japan, S. Akagi. †*P. quasifosteri* sp. n. (p. 215), Permian, China, J. C. Sheng (1). †*P. tumidosus* sp. n. (p. 309) Permian, Texas, C. A. Ross.

†*Pseudotriplasia* gen. n. (p. 497), *plana* sp. n. (p. 501); *P. robusta*, *inconstans*, *elongata*, *globulosa* spp. n. (p. 502), Miocene, Poland, J. Malecki (2).

†*Pseudovermiporella*, Permian, Asia Minor (transferred from Plantae to Ophthalmitidae), L. G. Henbest (2).

†*Pseudowedekindellina* gen. n. *proliza* sp. n. (p. 87), Palaeozoic, China, J. C. Sheng (3).

†*Putrella lui* sp. n. (p. 110), Palaeozoic, China, J. C. Sheng (3).

†*Pyrgo taamenensis* sp. n. (p. 30), Miocene, Australia, P. Vella. †*P. pacifica* sp. n. (p. 78), Recent, Japan, K. Asano (2).

†*Quasiendothyra umbonata* sp. n. (p. 26), Carboniferous, Russia, O. I. Boghush & O. V. Yeferev.

†*Quasifusulina spatiosa* sp. n. (p. 36), Upper Carboniferous, Mongolia, J. C. Sheng (2). †*Q. longissima* subsp. n. *ultima* (p. 158), Lower Permian, Japan, K. Kanmera (3).

- †*Quinqueloculina newberryensis*, *ocalana* spp. n. (p. 107), Eocene, Florida, H. S. Puri (3). †*Q. (Lachlanella) cooki* sp. n. (p. 25); *Q. (Lachlanella) colleae*, *rebecca*, *bicospoides* spp. n. (p. 25), Miocene, Australia, P. Vella. †*Q. suturata* sp. n. (p. 259), Miocene, Poland, T. Smigielska. †*Q. deliculata*, *kakitsiensis* spp. n. (p. 26); *Q. miles*, *parvaglutta* spp. n. (p. 27), Miocene, Australia, P. Vella. †*Q. (Quinqueloculina) sigmoilinoidea* sp. n. (p. 24); *Quinqueloculina (Quinqueloculina) incisa* sp. n. (p. 24), Miocene, Australia, P. Vella. †*Q. karatsuensis* sp. n. (p. 52), Oligocene, Japan, K. Asano (5). *Q. laticollis*, *osinclinatum* spp. n. (p. 167); *Q. aspera* var. n. *dilatata* (p. 169); *Q. colomi* sp. n. (p. 176); *Q. mediterraneensis* sp. n. (p. 177); *Q. villafranca* sp. n. (p. 180), Spanish Coast, J. Le Calvez & Y. Le Calvez. *Q. berthelotiana* var. *wiesneri* nom. n. (p. 174) (for *Miliolina berthelotiana* Wiesner 1923); *Q. williamseni* nom. n. (p. 177) (for *Miliolina bicornis* var. *elegans* Williamson 1958); *Q. viennensis* nom. n. (p. 187) (for *Q. cuvieriana* Brady 1884 (non d'Orbigny)), Spanish Coast, J. Le Calvez & Y. Le Calvez. †*Q. seminulanguata*, *triloculensiforma* spp. n. (p. 322); *Q. wheeldoni* sp. n. (p. 323), Miocene, Virginia, J. D. McLean (1). †*Q. trevisani* sp. n. (p. 115), Upper Tertiary, Italy, A. Longinelli.
- †*Quinquinella* gen. n. *hornibrooki* sp. n. (p. 21), Miocene, Australia, P. Vella.
- †*Rauserella minuta* sp. n. (p. 4), Permo-Carboniferous, Russia, A. D. Miklukho-Maklai. (1).
- †*Rectocibicidella* gen. n. (p. 370) *robertsi* sp. n. (p. 370), Miocene, Virginia, J. D. McLean (1).
- †*Rectocornuspira submoquensis* sp. n. (p. 78), Lower Carboniferous, Russia, E. V. Fomina.
- †*Rectoglandulina sagaensis* sp. n. (p. 54), Oligocene, Japan, K. Asano (5).
- †*Reichelina changsingensis* sp. n. (p. 207), Upper Palaeozoic, China, L. H. Chang & J. C. Sheng.
- †*Reophax buccina* sp. n. (p. 239); *Reophax lachrymosa* sp. n. (p. 240), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman. †*R. weydraszewiensis* sp. n. (p. 75), Devonian, Poland, S. Duszynska (3). †*R. belfordi* sp. n. (p. 60); *R. ellipsiformis* sp. n. (p. 61), Permian, Australia, I. Crespin (1). †*R. tappiensis* sp. n. (p. 71), Oligocene, Japan, K. Asano (5). †*R. hounstratensis* sp. n. (p. 308), Jurassic, England, A. J. Lloyd.
- †*Reticulophragmium* status thereof, Eocene, W. Mayne (1).
- †*Reussella minuta* sp. n. (p. 64), Recent, Trinidad, C. W. Drooger & J. P. H. Kaaschieter. †*R. tumida* sp. n. (p. 43), Miocene, Italy, G. Tavani (1).
- †*Rhynchospira abnormis* Hantken, status thereof, (p. 199), N. F. Glaessner & M. Wade (2).
- †*Robertina murotoensis* sp. p. (p. 13), Recent, Japan, K. Asano (4).
- †*Robulus pseudoiota* sp. n. (p. 325), Miocene, Virginia, J. D. McLean (1). †*R. sagaensis* sp. n. (p. 54), Oligocene, Japan, K. Asano (5). †*R. kusuboensis* sp. n. (p. 64), Eocene, Japan, K. Asano (5). †*R. mezeriacae* sp. n. (p. 66), Miocene, Czechoslovakia, I. Cicha (6). †*R. benacensis* sp. n. (p. 129), Tertiary, Italy, H. Hagn.
- †*Rosalina paupereques* sp. n. (p. 35), Miocene, Australia, P. Vella.
- †*Rotalia limbatobecarii* sp. n. (p. 357), Miocene, Virginia, J. D. McLean (1). †*R. aegyptiaca* sp. n. (p. 47) *R. convexa* sp. n. (p. 48), Upper Cretaceous, Egypt, L. W. Le Roy.
- †*Rotaliporinae* Segal 1958 emend (p. 8), F. T. Banner & W. H. Blow.
- †*Rotorhinella aegyptiaca* sp. n. (p. 48), Tertiary, Egypt, L. W. Le Roy.
- †*Rohndia* Subbotina 1953—included in *Praglobotruncana* Bermudez, V. Scheibner.
- †*Rugofusulina pristina* sp. n. (p. 184), Lower Permian, Japan, K. Kanmera (3). †*R. bukiensis* sp. n. (p. 267), Permian, Japan, M. Kobayashi.
- †*Rzehakina spiroloculinoides* sp. n. (p. 134), Cretaceous Italy, E. Montanaro Gallitelli (1).
- †*Saccamina* ? *caudata* sp. n. (p. 129), Cretaceous, Italy, E. Montanaro Gallitelli (1).
- †*Saccaminoides* gen. n. *multicellus* sp. n. (p. 841) (genotype) Carboniferous, U.S.A., H. A. Ireland.
- †*Sacculinella* gen. n. *australiae* sp. n. (p. 42), Permian, Australia, I. Crespin (1).
- †*Saeedeeria* gen. n. (p. 196); [genotype *Gromia gemma* Penard 1889 (include *Diplogromia* Rhumbler of de Saedeleer 1934 (non Rhumbler 1904)], A. R. Loeblich Jr. & H. Tappan (2).
- †*Schackoinella* gen. n. *sarmatica* sp. n. (p. 141), Miocene, Germany, R. Weinhandl (4).
- †*Schenckella fragilis* sp. n. (p. 896), Eocene, Ecuador, J. Hofker (1).
- †*Schubertella yadaniensis* n. sp. (MS) [nom. nud.] (p. 304), Permian, Japan, R. Morikawa & H. Isomi. †*S. pseudosimplex* sp. n. (p. 270), Permian, China, J. C. Sheng (4). †*S. lata* Lee & Chen var. n. *elliptica* (p. 78); *S. obscura* Lee & Chen var. n. *penchiensis* (p. 79); *S. quasiobscura* sp. n. (p. 79); *S. elongata* sp. n. (p. 80), Palaeozoic, China, J. C. Sheng. †*S. sp.* n. listed but not named (p. 69), Permian, Japan, S. Kawada (3).
- †*Schoeagerina exilis* var. n. *takesii* (p. 106); *S. giffensis* sp. n. (p. 108); *S. kinosukii* sp. n. (p. 109), Permian, Japan, R. Morikawa (2). †*S. shinadai* sp. n. (p. 85), Upper Palaeozoic, Japan, R. Morikawa. †*S. amushanensis* sp. n. (p. 40), Upper Carboniferous, Japan, J. C. Sheng (2). †*S. liangshanensis* sp. n. (p. 212); *S. pseudocompacta* sp. n. (p. 214), Permian, China, J. C. Sheng (1). †*S. erebrisepia* sp. n. (p. 303); *S. dispansa* sp. n. (p. 304); *S. extumida* sp. n. (p. 305); *S. lineanoda* sp. n. (p. 306); *S. pugunculus* sp. n. (p. 307); *S. tersa* sp. n. (p. 308), Permian, Texas, C. A. Ross. †*S. crassialveola* sp. n. (p. 271), Permian, China, J. C. Sheng (4). †*S. gigantajaponica* sp. n. (p. 287); *S. ibukiensis* sp. n. (p. 289), Permian, Japan, M. Kobayashi. †*S. solopecki* sp. n. (p. 44), Upper Palaeozoic, V. Kochansky-Devidé (2). †*S.*

*medullaris* sp. n. (p. 780); *S. moormanensis* sp. n. (p. 781); *S. mucronata* sp. n. (p. 782); *S. subinflata* sp. n. (p. 783); *S. retusa* sp. n. (p. 783), Permian, Nevada, R. L. Knight.

†*Scutularia redandoensis* sp. n. (p. 629), Recent, California, M. Reiter.

†*Septatourneyella praesegmentata* sp. n. (p. 20), Carboniferous, Russia, O. I. Boghush & O. V. Yuferev.

†*Serpula pusilla* Geinitz 1848 emend. (p. 47), Permian, Poland, H. Wolanska.

†*Serpulopsis* Girty 1911 [previously listed in *Vermes* now included in *Tolypamminae*], Palaeozoic, L. G. Henbest (2).

†*Sigmolilina ecuadorensis* sp. n. (p. 900), Eocene, Ecuador, J. Hofker (1). †*S. granulata, plana*, spp. n. (p. 260), Miocene, Poland, T. Smigielska. †*S. sakasegawaensis* sp. n. (p. 64), Eocene, Japan, K. Asano (5).

†*Sigmolipsinae* subfam. n. (p. 18), P. Vella.

†*Sigmolipsis neocelata* sp. n. (p. 656), *S. compressa* sp. n. (p. 657), Tertiary, New Zealand, N. de B. Hornibrook (1). †*S. wanganuiensis, finlayi* spp. n. (p. 20), Miocene, Australia, P. Vella. †*Sigmomorphina neocomiensis* sp. n. (p. 76), Lower Cretaceous, Poland, J. Szejn. (1). †*S. lacrimosa, rhomboidalis* spp. n. (p. 31), Miocene, Australia, P. Vella.

†*Sigmomorphinoides* subgen. n. *parisaensis* sp. n. (p. 62) (subgenotype) of *Sigmomorphina*, Eocene, France, A. Rouvillois. †*S. (Sigmomorphinoides) parisaensis* var. n. *obtusa* (p. 62), Eocene, France, A. Rouvillois.

†*Siphonaperta* gen. n. *crassa, macbeathi* spp. n. (p. 19), Miocene, Australia, P. Vella.

†*Siphonina temblorensis* sp. n. (p. 969), Miocene, California, L. E. Garrison.

†*Siphoteztularia blacki* sp. n. (p. 16) *S. mestayerae, fretensis* spp. n. (p. 17), Miocene, Australia, P. Vella.

†*Skinnerella* subgen. n. (p. 262) [of *Parafusulina* (genotype *Parafusulina schucherti* Dunbar & Skinner), Upper Palaeozoic, America, A. H. Coogan.

†*Sorosphaera papilli* sp. n. (p. 232), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman.

†*Sphaeroidinellinae* subfam. n. (p. 5), F. T. Banner & W. H. Blow.

†*Sphaeroidinella* Cushman 1927 emend. (p. 15), F. T. Banner & W. H. Blow. †*S. dehiscens* subsp. n. *subdehiscens* (p. 195), Miocene, Venezuela, W. H. Blow.

†*Sphaeroidinellopsis* gen. n. (p. 15) (genotype *Sphaeroidinella dehiscens subdehiscens* Blow 1959), F. T. Banner & W. H. Blow.

†*Sphaerulina crassispira* subsp. n. *caucasica* (p. 3), Permian-Carboniferous, Russia, A. D. Miklukho-Maklai. (1).

†*Spirillina flava* sp. n. (p. 77), Lower Cretaceous, Poland, J. Szejn (1).

†*S. medioscabra* sp. n. (p. 36); *S. tuberosa* sp. n. (p. 38), Tertiary, Australia, A. N. Carter.

†*S. papillo-dentata*, sp. n. (p. 119), Permian, Australia, I. Crespin (1).

†*Spirobolivina* gen. n. (p. 915) (genotype *Bolivina pulchella* Cushman & Stainforth 1947), Eocene, Ecuador, J. Hofker (1).

†*Spiroclypeus albapustula* sp. n. (p. 762) Tertiary, Eniwetok Atoll, W. S. Cole (2). †*S. reticulatus* sp. n. (p. 74) Tertiary, East Africa, A. Azzaroli.

†*Spirocyclina* Munier Chalmas 1887 emend. thereof (p. 37), W. Mayne (3). †*S. choffati* Munier Chalmas emend. thereof (p. 38), W. Mayne (3).

†*Spirolina pulchra* sp. n. (p. 272) Miocene, Poland, T. Smigielska.

†*Spiroloculina esnaensis* sp. n. (p. 49) Tertiary, Egypt, L. W. Le Roy. *S. ornata* var. n. *tricarinata* (p. 207) Spanish Coast, J. Le Calvez & T. Le Calvez. †*S. newberryensis* sp. n. (p. 109), Eocene, Florida, H. S. Puri (3).

†*Spiroplectammina esnaensis, desertorum, henryi* spp. n. (p. 50), *S. briebelei* sp. n. (p. 51), Tertiary, Egypt, L. W. Le Roy; †*S. carinata* (d'Orbigny) [based on *Textularia carinata* d'Orbigny] Miocene, A. G. Tauber; †*S. carnarvonensis* sp. n. (p. 76), Permian, Australia, I. Crespin (1); †*S. (Semivulvulina) gumbeli* sp. n. (p. 114) Tertiary, Italy, H. Hagn; †*S. kitamatsuraensis* sp. n. (p. 457), *S. saseboensis* sp. n. (p. 457), Tertiary, Japan, T. Kihara & S. Murata & N. Sugahara.

†*Stacheia dickinsi* sp. n. (p. 95), Permian, Australia, I. Crespin (1).

†*Staffella akagoensis* sp. n. (p. 22), Pennsylvanian, Japan, R. Toriyama.

†*Stainforthia* gen. n. (p. 908) (genotype *Virgulina concava* Høglund 1947); *S. delliformis* sp. n. (p. 908) [includes *Lozostomum dalli* Cushman & Stainforth (non Cushman 1946)], Eocene, Ecuador, J. Hofker (1).

†*Stensivina annae* sp. n. (p. 265), Cretaceous, Poland, K. Pozaryska.

†*Stilostomella ? costata* sp. n. (p. 904), Eocene, Ecuador, J. Hofker (1).

†*Stomatobina kendrickensis* sp. n. (p. 123), Eocene, Florida, H. S. Puri (3).

†*Streblus voorthuyseii* sp. n. (p. 59), Miocene, Belgium, J. Hofker (4).

†*Sumatrina fusiformis* sp. n. (p. 278), Permian, China, J. C. Sheng (4).

†*Taitzehoella taitzhoensis* Sheng var. n. *extensa* Sheng (p. 84), Palaeozoic, China, J. C. Sheng (3).

†*Textularia eustiensis* sp. n. (p. 318); *T. pseudobliqua* sp. n. (p. 320); *T. pseudobliqua* subsp. n. *askera* (p. 320), Miocene, Virginia, J. D. McLean (1); †*T. yorktownensis* nom. n. (p. 969) [for *Textularia pseudobliqua* subsp. *aspera* McLean 1956 (non Ehrenberg 1838), J. D. McLean (2); †*T. howei* sp. n. (p. 100); *T. triangulata* sp. n. (p. 101), Eocene, Florida, H. S. Puri (3); †*T. schwaegeri, forafraensis*



spp. n. (p. 51), Tertiary, Egypt, L. W. Le Roy; *†T. parallela* Reuss subsp. n. *amudariensis* (p. 38), *†T. pitmyakensis* sp. n. (p. 38), Tertiary, Czechoslovakia, I. S. Suleimanov; *†T. alcesensis* sp. n. (p. 32), Cretaceous, Canada, C. R. Stelek & J. H. Wall & R. E. Wetter; *†T. prozipsira* sp. n. (p. 15); *T. ensis*, subantarctica spp. n. (p. 16), Miocene, Australia, P. Vella; *†T. bookeri* sp. n. (p. 77); *T. improcera* sp. n. (p. 78), Permian, Australia, I. Crespin (1); *†T. bucheri*, *elsiae* spp. n. (p. 859); *T. virgilensis* sp. n. (p. 861); Carboniferous, U.S.A., H. A. Ireland; *†T. imariensis* sp. n. (p. 53), Oligocene, Japan, K. Asano (5).

*†Tetularioides* (?) *carteri* sp. n. (p. 321), Miocene, Virginia, J. D. McLean (1).

*†Thomassinella* Schlumberger 1893 emend (p. 883); *T. aegyptia* sp. n. (p. 885); *T. fragmentaria* sp. n. (p. 886), Cenomanian, Egypt, S. Omara.

*†Thurammina diforamens* sp. n. (p. 840); *T. lawrencensis*, *rectangularis*, *verrucosa* spp. n. (p. 843); Carboniferous, U.S.A., H. A. Ireland; *†T. furcata* sp. n.; *T. triadriata* n. sp. (p. 233), Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman; *†T. phialaeformis* sp. n. (p. 39), Permian, Australia, I. Crespin (1); *†T. sandfordi* sp. n. (p. 148), Pleistocene, Egypt, R. Said & N. A. Basiouni; *†Ticinella* sp. n. (p. 82) [nom. nud.], Cretaceous, North Africa, L. David.

*†Tolypammina extenda* sp. n. (p. 849); *T. nodosa*, *polyverta*, spp. n. (p. 850); *T. rugosa*, *serpens*, spp. n. (p. 851); Carboniferous, U.S.A., H. A. Ireland; *†T. botonuncus*, *cyclops* spp. n. (p. 245); *T. rotula* sp. n. (p. 247); Lower Mississippian, Northern Indiana, R. C. Gutschick & J. F. Treckman; *†T. incertae* sp. n. (p. 79), Lower Carboniferous, Russia, E. V. Fomina.

*†Torinosuella* gen. n. (p. 6); (genotype), *T. peneropliformis* originally *Choffatella peneropliformis*, Mesozoic, Germany, W. Mayne (2).

*†Trepeilopsis australiensis* sp. n. (p. 86), Permian, Australia, I. Crespin (1); *†T. glomosciroides* sp. n. (p. 243); *T. prodigalis*, *recurvidens*, *spiralis* spp. n. (p. 244), Lower Mississippian, Northern Indiana, R. C. Gutschick, & J. F. Treckman.

*†Trifarina censaensis* sp. n. (p. 52), Tertiary, Egypt, L. W. Le Roy.

*Triloculina wiesneri* sp. n. (p. 195), Spanish Coast, J. Le Calvez & Y. Le Calvez; *T. adriatica* nom. n. (p. 188) (for *Miliolina tricarinata*, Wiesner 1923 (non Orbigny)), Spanish Coast, J. Le Calvez & Y. Le Calvez; *†T. idae* sp. n. (p. 28), Miocene, Australia, P. Vella; *†T. sommersi* sp. n. (p. 24), Recent, Brazil, I. de M. Tinoco (2).

*†Triplalepidina* Vaughan & Cole 1938; suppression thereof, T. F. Grimsdale (2).

*†Triplasia inaequalis* sp. n. (p. 112), Tertiary, Italy, H. Hagn.

*†Triticites comptus* sp. n. (p. 300) Permian, Texas, C. A. Ross; *†T. lozus*, *lalaoluensis* spp. n. (p. 38), Upper Carboniferous, Mongolia, J. C. Sheng (2); *†T. winterensis* sp. n. (p. 807), Permian-Carboniferous, U.S.A., M. L. Thompson, G. J. Verville, & D. H. Lokke; *†T. yamayadakensis* subsp. n. *erectus* (p. 163),

*T. fornicatus* sp. n. (p. 171), Lower Permian, Japan, K. Kammer (3); *†T. brevispira* sp. n. (p. 40), Upper Palaeozoic, V. Kochansky-Devidé (2); *†T. matsumotoi* sp. n. (p. 184); *T. yamayadakensis* sp. n. (p. 186), Upper Carboniferous, Japan, K. Kammer (2).

*†Tritubulogenerina pulchra* sp. n. (p. 91), Eocene, France, Y. Le Calvez (2).

*†Trochammina enouraensis* sp. n. (p. 69), Eocene, Japan, K. Asano (5); *†T. minnesotensis*, *globosa*, spp. n. (p. 289), Cretaceous, Minnesota, E. J. Bolin (2); *†T. hasdoensis* sp. n. (p. 132), Carboniferous, India, S. B. Bhatia & S. K. Singh; *†T. laevis* sp. n. (p. 90); *T. pokolbinensis* n. nov. [for *Ammodiscus planoconvexus*] (p. 91), Permian, Australia, I. Crespin (1); *†T. lykocae* sp. n. (p. 80), Paleogene, Russia, F. V. Kipriyanova.

*†Trochamminoides pusillus*, *fusculiformis*, *insolitus*, *cheni* spp. n. (p. 402), Trias, China, Y. Ho (1).

*†Trocholina krozyanowiensis* sp. n. (p. 79), Lower Cretaceous, Poland, J. Szejn (1).

*†Tryblilepidina* Van der Vlerk 1928; suppression thereof, T. F. Grimsdale (2); *†T.* Van der Vlerk 1928, status thereof, T. F. Grimsdale & I. N. van der Vlerk.

*†Uvigerina sakasegawaensis* sp. n. (p. 66), Eocene, Japan, K. Asano (5); *†U. peregrina* subsp. n. *shiwoensis* (p. 35), Recent, Japan, K. Asano (4); *†U. kernensis* var. n. *subcalva* (p. 259); *†U. senticosa* var. n. *adiposa* (p. 259); Pliocene, California, W. R. White; *†U. angustiformis* nom. n. (p. 34) (for *Uvigerina peregrina* Cushman var. *bradyana* Cushman 1923), Miocene, Australia, P. Vella; *†U. rothwelli* sp. n. (p. 1303), Miocene, California, R. L. Pierce; *†U. gianninii* sp. n. (p. 164), Upper Tertiary, Italy, A. Longinelli; *†U. magliensis* sp. n. (p. 52), Tertiary, Egypt, L. W. Le Roy.

*†Vaginulina yoshihamaensis*; revised description thereof (p. 48), Miocene, Japan, M. Chiji (3); *†V. giddiana* Said and Kenawy nom. n. [*Vaginulina longiformis* Said and Kenawy 1956 (non *Vaginulina longiformis* (Plummer) 1926 olim: *Cristellaria longiformis* Plummer 1926)], H. E. Thalmann (3); *†V. clathrata* subsp. n. *cypensa* (p. 320), Jurassic, England, R. Cifelli.

*†Vaginulopsis acanthonucleus* sp. n. (p. 30), Tertiary, Australia, A. N. Carter.

*†Valvulineria brotzeni* sp. n. (p. 460), Paleocene, Egypt, S. E. Nakkady; *†V. alicia* sp. n. (p. 1306), Miocene, California, R. L. Pierce; *†V. washingtoni* sp. n. (p. 354), Miocene, Virginia, J. D. McLean (1); *†V. aegyptica*, *critchetti*, spp. n. (p. 53), Tertiary, Egypt, L. W. Le Roy; *†V. kingi*, *putnami* spp. n. (p. 72), Miocene, South Africa, P. G. Biesiot; *†V. filiae-principis* sp. n. (p. 159), Tertiary, Italy, H. Hagn; *†V. stainesforthi* nom. n. (p. 942) (for *Discorbis samanica* Cushman & Stone 1947), Eocene, Ecuador, J. Hofker (1).

*†Vaughanina hungarica* sp. n. (p. 393), Tertiary, Hungary, M. Sido (1); *†V. jordanae* sp. n. (p. 429); *V. guatmealensis* sp. n. (p. 434), Cretaceous, America, P. Brönnimann.

†*Verneulina minuta* sp. n. (p. 47), Jurassic, Egypt, R. Said & N. G. Barakat; †*V. sabulosa* sp. n. (p. 76), Paleogene, Russia, F. V. Kipriyanova; †*V. saseboensis* sp. n. (p. 457), Tertiary, Japan, T. Kihara & S. Murata & N. Sugahara; †*V. virgilensis* sp. n. (p. 863), Carboniferous, U.S.A., H. A. Ireland.

†*Vernonina* gen. n. *tuberculata* sp. n. (p. 124), Eocene, Florida, H. S. Puri (3).

†*Victoriella* Chapman & Crespin emend thereof (p. 203), M. F. Glaessner & M. Wade (2); †*V. plecta* (Chapman). Redescription of (p. 194), M. F. Glaessner & M. Wade (2).

†*Vidalina theriaghati* sp. n. (p. 376), Tertiary, Assam, B. K. Ghose.

†*Virgulina antilleana* nom. nud. [for *Bolivina pulchella* (d'Orbigny) var. *primitiva* Cushman 1930], C. W. Drooger & J. P. H. Kaasschieter.

†*Wedekindellina ardmorensis* sp. n. (p. 803), Permian-Carboniferous, U.S.A., M. L. Thompson, G. J. Verville, & D. H. Lokke.

†*Yabeina ozawai* sp. n. (p. 155), Permian, Japan, S. Hanjo; †*Y. packardii* Thompson & Wheeler shimensis subsp. n. (p. 58); *Y. omurensis* sp. n. (p. 62), Permian, Japan, N. Yamagiwa & K. Ishii; †*Y. gubleri* sp. n. (p. 362), Permian, Japan, K. Kanmera (1).

†*Yangchiensia antiqua* sp. n. (p. 52), Permian, Yugoslavia, V. Kochansky-Devidé (4); †*Y. antiqua* sp. n. (p. 26) nom nud., Permian, Yugoslavia, V. Kochansky-Devidé (3).

#### (d) Heliozoa.

*Acanthocystis erinaceoides* (p. 548) and *A. perpusilla* (p. 550) spp. n. Denmark, J. B. Petersen & J. B. Hansen.

*Dimorpha floridanis* sp. n. (p. 504) Florida, U.S.A., E. C. Bovee (10).

#### (e) Radiolaria.

†*Artophormis gracilis* sp. n. (p. 300), Oligocene, Pacific, W. R. Riedel (2).

†*Brachiospyris simplex, alata* spp. n. (p. 293), Tertiary, Pacific, W. R. Riedel (2).

†*Calocyclus costata* sp. n. (p. 296), Miocene, Pacific, W. R. Riedel (2).

†*Cannartus laticonus* sp. n. (p. 291), Miocene, Pacific, W. R. Riedel (2).

†*Cenosphaerites mamp.* nov. (p. 968), Viséan, France, G. Deflandre & M. Deflandre-Rigaud (1).

†*Ceratospaerites mamp.* nov. (p. 968) Viséan, France, G. Deflandre & M. Deflandre-Rigaud (1).

†*Culosphaera significans* sp. n. (p. 968), Viséan, France, G. Deflandre & M. Deflandre-Rigaud (1).

†*Diabolocampe* Burma gen. n. (p. 329) (genotype *Thecampe stenostroma* Haeckel 1887), B. H. Burma (2).

†*Dictyocephala* Ehrenberg 1860; emend (p. 328), B. H. Burma (2).

†*Dictyocephalus* Ehrenberg 1860; emend. (p. 328), B. H. Burma (2).

†*Dictyophimus mawsoni* sp. n. (p. 234), Recent, Antarctic, W. R. Riedel (1).

†*Diploplegma banzare* sp. n. (p. 223), Recent, Antarctic, W. R. Riedel (1).

†*Lychnocarium bipes* sp. n. (p. 294), Tertiary, Pacific, W. R. Riedel (2).

†*Peripyramis* Haeckel 1882 emend. thereof (p. 231), Recent, Antarctic, W. R. Riedel (1).

†*Phormocyrtis annosa* sp. n. (p. 295), Tertiary, Pacific, W. R. Riedel (2).

†*Sethamphorus* Haeckel 1887; emend. (p. 327), B. H. Burma (2).

†*Sethocephala* Haeckel 1887; emend. (p. 328), B. H. Burma (2).

†*Spongopyramis* Haeckel 1887 [included in *Peripyramis* Haeckel emend. Riedel], Recent, Antarctic, W. R. Riedel (1).

†*Spongurus pylomaticus* sp. n. (p. 226), Recent, Antarctic, W. R. Riedel (1).

†*Streptodelus* Campbell 1953; emend. (p. 328), B. H. Burma (2).

†*Theocampe* Haeckel 1887; emend. (p. 328), B. H. Burma (2).

†*Theocyrtis tuberosa* sp. n. (p. 298), Oligocene, Pacific, W. R. Riedel (2).

†*Tricolocampe* Haeckel 1882; emend. (p. 329), B. H. Burma (2).

†*Tregonactura ? angusta* sp. n. (p. 292), Oligocene, Pacific, W. R. Riedel (2).

#### (f) Rhizomastigina.

*Mastigamoeba nilensis* sp. n. (p. 545); Upper Nile, Egypt, F. Warwick (3); *M. sapropelica* sp. n. (p. 97); *M. sordis* (p. 99), Rumania, L. Lepsi; *M. variabilis*; *M. pyriformis*; *M. minuta* spp. n. (all p. 184). Manchuria, B. W. Skvortzow.

*Mastigella bryophyta* (p. 185); *M. nodosa* (p. 185); spp. n. (Manchuria), B. W. Skvortzow.

#### (g) Mycetozoa.

*Mycetozoa* (List): France, D. Jarry & D. Vidal.

*Licea persilla* var. *mazima* var. n. (p. 79), France, D. Jarry & D. Vidal.

### 2.—MASTIGOPHORA PHYTOMASTIGINA

#### (a) Chrysomonadida.

†*Anezrochitina multiradiata* sp. n. (p. 14), Ordovician, Baltio, A. Eisenack (4).

†*Angochitina longicollis* sp. n. (p. 13), Silurian, Baltio, A. Eisenack (4).

*Anthosphaera aurea* sp. n. (p. 11) Indian Ocean, F. Bernard & T. Lecal.

†*Biscutum* gen. n. *testudinarium* sp. n. (p. 325) (genotype); *B. castrorum* sp. n. (p. 326), Cretaceous, England, M. Black & B. Barnes.

†*Brachiolithus quadratus* cent. n. (p. 171); *B. pentagonus* cent. n. (p. 172); *B. hexagonus* cent. n. (p. 172), Mesozoic, North Africa, D. Noël (2).

†*Bracheosphaeridae* fam. n. (p. 170), Mesozoic, North Africa, D. Noël (2).

†*Brachiosphaera* gen. n. (p. 170), Mesozoic, North Africa, D. Noël (2).

†*Bucculinus* man. nov. (p. 326); *B. algeriensis* cent. n. (p. 327); *B. hirsutus* cent. n. (p. 327), Jurassic, North Africa, D. Noël (1).

*Calcosoleina tenuis* sp. n. (p. 21); Indian Ocean, F. Bernard & J. Lecal.

*Chrysocromulina chiton* sp. n. (p. 225) Atlantic, M. Parke, P. Manton & B. Clarke.

*Chrysolykos gracilis* sp. n. (p. 102); England, J. W. G. Lund.

†*Clathrochitina* gen. n. *clathrata* sp. n. (p. 15) (genotype), Silurian, Gotland, A. Eisenack (4).

*Coccolithus erythreus* sp. n. (p. 20); Indian Ocean, F. Bernard & J. Lecal.

†*Conochitina micracantha* subsp. n. *micracantha* (p. 7); *C. micracantha* subsp. n. *comma* (p. 7); *C. micracantha* subsp. n. *pellifera* (p. 8); *C. micracantha* subsp. n. *robusta* (p. 9); *C. micracantha* subsp. n. *weissenbergense* (p. 10); Ordovician, Gotland, A. Eisenack (4); †*C. acuminata* sp. n. (p. 6), Silurian, Gotland, A. Eisenack (4); †*C. clava-herculi* sp. n. (p. 4); Ordovician, Gotland, A. Eisenack (4).

*Corisphaera ternax* sp. n. (p. 12); Indian Ocean, F. Bernard & J. Lecal.

†*Cyathochitina hyalophrys* sp. n. (p. 11); *C. makronyka* sp. n. (p. 12), Ordovician, Ohio, A. Eisenack (4).

*Cyclococcolithus fragilis* (Lohmann) comb. n. (p. 18); Indian Ocean, F. Bernard & J. Lecal.

†*Cyclolithus armilla* sp. n. (p. 327), Cretaceous, England, M. Black & B. Barnes.

†*Desmochitina* ? *acollare* sp. n. (p. 16), Silurian, Gotland, A. Eisenack (4).

†*Discolithus eruciatus*, cent. n. (p. 162); *D. rugosus* cent. n. (p. 163); *D. embergeri* cent. n. (p. 164); Mesozoic, North Africa, D. Noël (2); †*D. theta* sp. n. (p. 327), Cretaceous, England, M. Black & B. Barnes; †*D. bucaei* cent. n. (p. 319); *D. magni* cent. n. (p. 320), Jurassic, North Africa, D. Noël (1).

†*Hezalithus hezalithus* cent. n. (p. 321), Jurassic, North Africa, D. Noël (1).

†*Kamptnerius* gen. n. *magnificus* sp. n. (p. 135) (genotype), Cretaceous, France, G. Deflandre.

†*Lucianorhabdus* gen. n. *cayeuxi* sp. n. (p. 142) (genotype), Cretaceous, France, G. Deflandre.

*Mallomonas* taxonomy of, after electron microscopy, K. Harris & D. E. Bradley.

*Mallomonas acaroides* var. *galeata* var. n. (p. 755); *M. lelymene* sp. n. (p. 758); *M. monographus* (p. 759); *M. striata* var. *serrata* var. n. (p. 761); *M. flora* sp. n. (p. 762); *M. cratis* sp. n. (p. 762); *M. adamas* sp. n. (p. 768); *M. pumilio* var. *silvicola* var. n. (p. 770); *M. phasma* sp. n. (p. 772); *M. mangifera* sp. n. (p. 772); all British, K. Harris & D. E. Bradley.

*Mallomonas* spp. (taxonomy and distribution): Hungary, G. Uherkovich.

†*Marthasterites* gen. n. (p. 138) (genotype *Discoaster* (?) *furcatus* Deflandre 1954); *M. furcatus* var. n. *crassus* (p. 139); *M. furcatus* var. n. *bramletti* (p. 139); *M. jucundus* sp. n. (p. 140); *M. jucundus* var. n. *dentiferus* (p. 140); *M. inconspicuus* sp. n. (p. 140), Cretaceous, France, G. Deflandre.

†*Microrhabdulus* gen. n. *decoratus* sp. n. (p. 140) (genotype); *M. decoratus* var. n. *attenuatus* (p. 141); *M. helicoideus* sp. n. (p. 141), Cretaceous, France, G. Deflandre.

†*Neococcolithus* sp. n. (p. 81), Tertiary, Germany, D. Maier (1).

*Neosphaera coccolithomorpha* Lecal var. *striata* var. n. (p. 15); Indian Ocean, F. Bernard & J. Lecal.

†*Parhabdolithus crassus* cent. n. (p. 169); *P. lunatus* cent. n. (p. 169), Mesozoic, North Africa, D. Noël (2).

†*Pterochitina makroptera* sp. n. (p. 17), Silurian, Gotland, A. Eisenack (4).

*Rhabdocylus* parag. n. (p. 21); *R. simplex* sp. n. (p. 21), Indian Ocean, F. Bernard & J. Lecal.

†*Rhabdolithus anthophorus* sp. n. (p. 137), Cretaceous, France, G. Deflandre; †*R. denticulatus* cent. n. (p. 166); *R. granulatus* cent. n. (p. 167); *R. sulcatus* cent. n. (p. 167); *R. delicatulus* cent. n. (p. 168); *R. obtusus* cent. n. (p. 168); *R. pellucidus* cent. n. (p. 168), Mesozoic, North Africa, D. Noël (2); †*R. claviger* comb. n. (p. 325); *R. tignifer* comb. n. (p. 326), Jurassic, North Africa, D. Noël (1).

†*Stephanolithon lafittei* sp. n. (p. 318), Jurassic, North Africa, D. Noël (1).

*Syracolithus orientalis* sp. n. (p. 8), Indian Ocean, F. Bernard & J. Lecal.

*Tergerstiella calumnia* sp. n. (p. 13), Indian Ocean, F. Bernard & J. Lecal.

†*Tetralithus gothicus*, *obscurus*, *copulatus* spp. n. (p. 138), Cretaceous, France, G. Deflandre.

*Tetrasporopsis pseudofenestrata* sp. n. (p. 97), England, J. W. G. Lund.

*Tremalithus sertus* sp. n. (p. 20), Indian Ocean, F. Bernard & J. Lecal. †*T. burwellensis* sp. n. (p. 324); *T. barnesae* sp. n. (p. 325), Cretaceous, England, M. Black & B. Barnes. †*T. rotundus* cent. n. (p. 323); *T. multiperforatus* cent. n. (p. 324), Jurassic, North Africa, D. Noël (1). †*T. kymaides* sp. n. (p. 286), Tertiary, Germany, D. Maier (2). †*T. sp.* n. (p. 81), Tertiary, Germany, D. Maier (1).

*Uroglenopsis rotundata* sp. n. (p. 183), Manchuria, B. W. Skvortzow.

†*Zygolithus bussoni* cent. n. (p. 321), Jurassic, North Africa, D. Noël (1). †*Z. sp.* n. (p. 81), Tertiary, Germany, D. Maier (1). †*Z. glaphyrio* sp. n. (p. 287), Tertiary, Germany, D. Maier (2).

†*Zygrhablithus* gen. n. (p. 135) (genotype *Zygolithus byugatus* Deflandre 1954), Cretaceous, France, G. Deflandre.

#### (b) Cryptomonadida

*Chilomonas abrupta* sp. n. (p. 184), Manchuria, B. W. Skvortzow.

*Chroomonas hyemale* sp. n. (p. 184), Manchuria, B. W. Skvortzow.

*Cryptomonas globosa* sp. n. (p. 67), Switzerland, H. R. Christen (1).

#### (c) Dinoflagellata

Key to some dinoflagellate genera, H. Curl.

Dinoflagellates of Mediterranean, Y. Halim (1)

*Alezandrium minutum* sp. n. (p. 102), Mediterranean, Y. Halim (2).

*Amphidium skujae* sp. n. (p. 69), Switzerland, H. R. Christen (1). *A. achromaticum* (p. 194); *A. alinsi* (p. 195); *A. nasutum* (p. 194); spp. n. Manchuria, B. W. Skvortzow.

†*Aptea* gen. n. (p. 393), *polymorpha* sp. n. (p. 394) (genotype), Cretaceous, Germany, A. Eisenack (2).

†*Apteodinium* gen. n. (p. 385) *granulatum* sp. n. (p. 386) (genotype), Cretaceous, Germany, A. Eisenack (2).

†*Areoligera biramum* sp. n. (p. 304); *A. dermaticum* sp. n. (p. 305), Tertiary, Germany, D. Maier (2).

†*Broomea* gen. n. *ramosa* sp. n. (p. 41) (genotype); *B. simplex* sp. n. (p. 42), Jurassic, Australia, I. C. Cookson & A. Eisenack.

†*Bulbodinium* gen. n. *seitzii* sp. n. (p. 82) (genotype), *B. altipetax*, *oistoides* spp. n. (p. 83), Cretaceous, Baltic, O. Wetzel.

†*Calpionella intermedia* sp. n. (p. 167), Cretaceous, North Africa, N. Durand Delga (3). †*C. involuta* sp. n. (p. 872), Cretaceous, Germany, W. Leischner.

†*Calpionellites lata* sp. n. (p. 872), Cretaceous, Germany, W. Leischner.

†*Deflandrea cooksoni* sp. n. (p. 97); *D. minor* sp. n. (p. 98); *D. spectabilis*, *diebeli* spp. n. (p. 99); *D. pirnaensis* sp. n. (p. 100); *D. ventriosa* sp. n. (p. 101); *D. perlucida* sp. n. (p. 102), Cretaceous, Germany, G. Alberti (2). †*D. denticulata* sp. n. (p. 102) [includes *Peridinium* cf. *galeatum* Pastels 1948 (pars) non Lejeune-Carpentier], Eocene, Germany, G. Alberti (2). †*D. speciosa* sp. n. (p. 97), Paleocene, Germany, G. Alberti (2). †*D. spinulosa* sp. n. (p. 95), Oligocene, Germany, G. Alberti (2). †*D. oebisfeldensis* sp. n. (p. 95), Eocene, Germany, G. Alberti (2). †*D. cincta* sp. n. (p. 26); *D. koronensis* sp. n. (p. 27); *D. parva*, *serratula* spp. n. (p.

28), Cretaceous, Australia, I. C. Cookson & A. Eisenack. †*D. acuminata*, *pellucida* spp. n. (p. 27), Cretaceous to Eocene, Australia, I. C. Cookson & A. Eisenack.

†*Dingodinium* gen. n. *jurassicum* sp. n. (p. 39), (genotype), *D. cerviculum* sp. n. (p. 40), Jurassic, Australia, I. C. Cookson & A. Eisenack. †*D. europaeum* sp. n. (p. 392), Cretaceous, Germany, A. Eisenack (2).

†*Dinophysis antarcticum* sp. n. (p. 82), "Recent, Antarctic, E. Balech.

*Dinoporella perforata* (Gran.) Schiller nom. n. (p. 188), Y. Halim (1).

†*Diplopeltopsis granulosa* sp. n. (p. 84), Recent, Antarctic, E. Balech.

†*Galea* gen. n. (p. 305) *galea* sp. n. (p. 306) (genotype); *G. mespilana* sp. n. (p. 306); *G. densicoma* sp. n. (p. 307); *G. ziphea* sp. n. (p. 309); *G. lychna*, *koryka* sp. n. (p. 310), Tertiary, Germany, D. Maier (2).

*Glenodinium abruptum* (p. 195); *G. cosmariaeforme* (p. 195); *G. majale* (p. 196); *G. maliavkini* (p. 196); *G. rotundatum* (p. 195); *G. sungariense* (p. 196); *G. turfosum* (p. 196); *G. viride* (p. 195); spp. n., Manchuria, B. W. Skvortzow.

†*Gonyaulax orthoceras* sp. n. (p. 388); *G. tenuiceras* sp. n. (p. 389); *G. microceras*, *aerac* spp. n. (p. 391), Cretaceous, Germany, A. Eisenack (2). †*G. eisenacki* subsp. n. *obodontata* (p. 30); *G. scotti*, *perforans* spp. n. (p. 30); *G. serrata* sp. n. (p. 34), Jurassic, Australia, I. C. Cookson & A. Eisenack. †*G. caytonensis* sp. n. (p. 330); †*G. cristulata* sp. n. (p. 332); †*G. transparentis* sp. n. (p. 334), Jurassic, Yorkshire, W. A. S. Sarjeant. †*G. muderongensis*, *edwardsi* spp. n. (p. 32); *G. hyalodermopsis* sp. n. (p. 34); *G. apionis*, *diaphanis* spp. n. (p. 36), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

*Gymnodinium titubans* sp. n. (p. 70), Switzerland, H. R. Christen (1). *G. neglectum* var. (p. 183); *G. astigmatica* var. n. (p. 183); *G. irregularis* sp. n.; *G. thomasi* sp. n. (p. 179), Switzerland, H. R. Christen (2). †*G. attadalenae*, *westralium* spp. n. (p. 25), Cretaceous, Australia, I. C. Cookson & A. Eisenack. †*G. parvmarginatum* sp. n. (p. 24), Jurassic, Australia, I. C. Cookson & A. Eisenack.

*Hemidinium bryophyticum* (p. 193); *H. mucosum* (p. 194); *H. oculatum* (p. 194) spp. n., Manchuria, B. W. Skvortzow.

*Histioneis elegans* sp. n. (p. 192); *H. imbricata* sp. n. (p. 192); *H. faouzi* sp. n. (p. 193); *H. rampii* sp. n. (p. 193); *H. villafranca* sp. n. (p. 194); *H. sublongicollis* sp. n. (p. 195), Mediterranean, Y. Halim (1).

*Hypnodinium asiaticum* sp. n. (p. 197), Manchuria, B. W. Skvortzow.

†*Hystrichodinium amphiacanthum* sp. n. (p. 37), Mesozoic, Australia, I. C. Cookson & A. Eisenack.

*Katodinium atigmaticum* sp. n. (p. 183); *K. intermedium* sp. n. (p. 184), Switzerland, H. R. Christen (2). *K. dorsalisulcum* n. sp. (West Indies), E. M. Hulbert, J. J. A. McLaughlin & P. A. Zahl.

†*Muderongia* gen. n. (p. 40), *mewhaei* sp. n. (p. 41), (genotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Palaeohystrichophora isodiametrica, pellifera* spp. n. (p. 38), *P. dispersa* sp. n. (p. 39), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Pareodinia prolongata* sp. n. (p. 335), *P. ceratophora* var. n. *pachyceras* (p. 337), Jurassic, Yorkshire, W. A. S. Barjeant.

†*Patilloides* gen. n. *juvavica* sp. n. (p. 874), Cretaceous, Germany, W. Leischner.

*Peridinium sphaeroideum* sp. n. (p. 71), Switzerland, H. R. Christen (1); *P. smirnovii* sp. n. (p. 197), Manchuria, B. W. Skvortzow; †*P. archiovatum* sp. n. (p. 84), *P. pseudoantarcticum* sp. n. (p. 85), *P. latistriatum* sp. n. (p. 86), *P. rosaceum, parvicollum* spp. n. (p. 87), *P. petersi* sp. n. (p. 88), *P. elegantissimum* sp. n. (p. 89), *P. raphanum* sp. n. (p. 90), *P. incertum* sp. n. (p. 91), *P. thulesense* sp. n. (p. 92), Recent, Antarctica, E. Balech.

*Prorocentrum manshuricum* sp. n. (p. 193), Manchuria, B. W. Skvortzow.

†*Pseudodeflandrea* gen. n. (p. 91), *gigantea* sp. n. (p. 92), (genotype), Oligocene, Germany, G. Alberti (1).

†*Pterodinium* gen. n. *oliferum* sp. n. (p. 395), (genotype), Cretaceous, Germany, A. Eisenack (2).

†*Serinodinium scutellum* sp. n. (p. 385), Cretaceous, Germany, A. Eisenack (2).

†*Stomiosphaera alpina* sp. n. (p. 870), Cretaceous, Germany, W. Leischner.

†*Wetzeliella irregularis* sp. n. (p. 28), Jurassic, Australia, I. C. Cookson & A. Eisenack.  
(d) Euglenoidida.

Systematics of colourless Euglenids. H. B. Christen.

*Aliniella* gen. n. (p. 180), *A. elliptica* (p. 180), *A. gracilis* (p. 180), *A. saltans* (p. 181), spp. n. Manchuria, B. W. Skvortzow.

*Ampullamonas*, gen. n. (p. 174), *A. repentes* sp. n., *A. rotante* sp. n., (p. 175), Manchuria, B. W. Skvortzow.

*Anisonema bryophyta* (p. 182) sp. n., *A. bryophyta*, var., *curta* var. n. (p. 182), *A. caudata* (p. 182), *A. daphniae* (p. 182), *A. depressa* (p. 181), *A. gracilis* (p. 181), *A. hyemele* (p. 182), *A. ignorata* (p. 181), *A. ovata* (p. 181), spp. n., *A. pulchra* var., *minor* var. n. (p. 182), *A. sphaerica* sp. n. (p. 181), Manchuria, B. W. Skvortzow; *A. hexagonale* sp. n. (p. 76), Switzerland, H. R. Christen (1).

*Astasia autumnale* (p. 171), *A. communis* (p. 170), *A. detrita* (p. 170), *A. dissecta* (p. 169), *A. distincta* (p. 169), *A. granulata* (p. 171), *A. lagenariae* (p. 170), *A. longiflagellata* (p. 169), *A. longicauda* (p. 169), *A. nutabilis* (p. 171), *A. repentes* (p. 170), *A. serpenta* (p. 170), *A. striata* (p. 170), *A. similis* (p. 171), *A.*

*stigmatella* (p. 169), *A. tenuissima* (p. 170) spp. n., Manchuria; *A. hyalina* nom. n. for *A. inflata hyalina* (p. 171), *A. falcata* nom. n. for *A. curvata* (p. 171), B. W. Skvortzow; *A. taeniata* sp. n. (pp. 149, 172), *A. vulgaris* nom. n. (*A. dangeardi* var. *parva*) (p. 151), *A. bacillifera* sp. n. (pp. 153, 172), *A. recta* sp. n. (pp. 153, 172), *A. agilis* sp. n. (pp. 154, 172), *A. pisciformis* (pp. 154, 173). All from Switzerland, H. B. Christen.

*Astasiella* gen. n. (p. 168), *A. peranemaformis* sp. n. (p. 169), Manchuria, B. W. Skvortzow.

*Baikowia* gen. n. (p. 176), *B. ferox* sp. n. (p. 176), Manchuria, B. W. Skvortzow.

*Baranovia* gen. n. (p. 174), *B. stagnalis* (p. 174) sp. n. Manchuria, B. W. Skvortzow.

*Calkinsia aureus* gen. n. and sp. n. (p. 105), N. America, J. B. Lackey (2).

*Colacium trachelomonoides* sp. n. (p. 186), Manchuria, B. W. Skvortzow.

*Cryptoglena corunta* (p. 167), *C. longicauda* (p. 167), *C. tumida* (p. 176), spp. n. Manchuria, B. W. Skvortzow.

*Distigma tremens* sp. n. (pp. 165, 173), *D. rigidum* sp. n. (pp. 165, 173), *D. breviciliatum* (pp. 166, 173), *D. tenue* (pp. 167, 174), *D. glabrum* (p. 167, 174), all from Switzerland, H. B. Christen; *D. papillata* sp. n. (p. 174), Manchuria, B. W. Skvortzow.

*Entosiphon abruptum* (p. 183), *E. depressum* (p. 182), *E. ellipticum* (p. 183), *E. novum* (p. 183), *E. rotundatum* (p. 183), spp. n. Manchuria, B. W. Skvortzow.

*Euglena penardii* sp. n. (p. 242), France, R. Bourrelly.

*E. interrolans* (p. 163), *E. messula* (p. 164), *E. orthia* (p. 164), *E. subacutissima* (p. 164), spp. n. *E. viridis* var. *hyalina* (p. 164) var. n., Manchuria, B. W. Skvortzow.

*E. tornata* sp. n. (p. 2), Mexico, R. P. Reyes & E. S. Gómez.

*Euglenophyton wrightianum* sp. n. (p. 343), Newfoundland, N. Woodhead & R. D. Tweed. (2).

*Eutreptia stagnalis* sp. n. (p. 168), Manchuria, B. W. Skvortzow.

*Gyropaigne minima* sp. n. (pp. 162, 173), Switzerland, H. B. Christen.

*Heteronema fusiformis* sp. n. (p. 179), *H. medusae* (p. 180), *H. robusta* (p. 179), spp. n. Manchuria, B. W. Skvortzow.

*Lipodinis acuta* (p. 167), *L. cordiformis* (p. 166), *L. minor* (p. 167), *L. ovalis* (p. 166), *L. hungariensis* (p. 166), spp. n. Manchuria, B. W. Skvortzow.

*Menodidiomonas* gen. n. (p. 173), *M. oculata* (p. 174), sp. n. Manchuria. *M. scheniakoffi* nom. n. for *Menoidium scheniakoffia* (p. 174), B. W. Skvortzow.



*Menoidium clavatum* (p. 172), *M. depressum* (p. 173), *M. euglenae* (p. 172), *M. incurvum* (p. 172), *M. patulum* (p. 172), *M. rapacis* (p. 173), *M. saevum* (p. 172), *M. singulum* (p. 172), *M. spirillum* (p. 173), *M. similis* (p. 173), *M. utriculariae* (p. 173), *sp. n. Manchuria*, *M. pseudoperrucium* *nom. n.* for *M. pellucidum* (p. 173), *M. closteriformis* *nom. n.* for *M. pellucidum* (p. 173), B. W. Skvortzow.

*Mereschkowskiella* *gen. n.* (p. 175), *M. nasuta* *sp. n.* (p. 176), Manchuria, B. W. Skvortzow.

*Paramylomonas* *gen. n.* (p. 171), *P. astasieformis* (p. 172), Manchuria, B. W. Skvortzow.

*Peranema acuta* (p. 177), *P. hyalina* (p. 176), *P. ocellata* (p. 177), *P. planktonica* (p. 177), *spp. n. Manchuria*, B. W. Skvortzow.

*Phacus canae* (p. 166), *P. carinata* (p. 166), *P. circulata* (p. 165), *P. hyalina* (p. 165), *P. ovalis* (p. 165), *P. pediformis* (p. 164), *P. rotundata* (p. 165), *P. rapacea* (p. 166), *P. spinifer* (p. 164), *P. spiralis* (p. 165), *spp. n.*, *P. aenigmatica* *var. asiatica* *var. n.* (p. 165), *P. anacetus* *var. asiatica* *var. nov.* (p. 164), *P. triquetus* *var. lata* *var. n.* (p. 166), all Manchuria, B. W. Skvortzow.

*Petalomonas pygmaea* *sp. n.* (p. 74), *P. elongata* *sp. n.* (p. 75), Switzerland, H. R. Christen (1). *P. platyrhyncha* *var. rotundata* *var. n.* (p. 176), Switzerland, H. R. Christen (2). *P. regularis* *sp. n.* (pp. 171, 174), Switzerland, H. B. Christen. *P. abrupta* (p. 177), *P. babanovii* (p. 178), *P. depressa* (p. 177), *P. evolo* (p. 179), *P. ornata* (p. 179), *P. piscator* (p. 177), *P. pisciformis* (p. 179), *P. rectangularis* (p. 178), *P. repentes* (p. 178), *P. spiralis* (p. 178), *P. subelliptica* (p. 179), *spp. n. Manchuria*, *P. glabra* *nom. n.* (p. 178), (for *P. sinica* Skv.), B. W. Skvortzow.

*Rhabdomonas torta* *sp. n.* (pp. 160, 173), Switzerland, H. B. Christen.

*Schewiakowia* *gen. n.* (p. 175), *S. natantes* *sp. n.* (p. 175), Manchuria, B. W. Skvortzow.

*Trachelomonas bartholomaei* *sp. n.* (p. 152), Rumania, J. Lepsi (3).

*Urceolus penardi* *nom. n.* (p. 179), for *U. cyclostomus*, B. W. Skvortzow.

#### (e) Chlonomonadida.

*Arnoldiamonas* *gen. n.*, *A. bispinosa*, *A. ocellata*, *spp. n.* (p. 155), Manchuria. *A. compressa* *nom. n.* (p. 155) for *Pteromonas compressa* Skv., B. W. Skvortzow.

*Arnoldiella phaseolus* *sp. n.* (p. 155), Manchuria, B. W. Skvortzow.

*Carteria lacustris* (p. 142), *C. obovata* (p. 142), *C. sinica* (p. 142), *C. striata* (p. 141), *spp. n.*, Manchuria, B. W. Skvortzow, *C. huberi* *sp. n.* (p. 77), Switzerland, H. R. Christen (1).

*Chlainomonas* *gen. n.* with *C. ovalis* *sp. n.* as type (p. 185), Switzerland, H. R. Christen (2).

*Chlamydotrys asiatica* *sp. n.* (p. 163), Manchuria, B. W. Skvortzow.

*Chlamydomonas deludens* *sp. n.* (p. 78), *C. opisthostigma* *sp. n.* (p. 80), *C. crassa* *sp. n.* (p. 81), all Switzerland, H. R. Christen (1), *C. subconica* *sp. n.* (p. 81), *C. pisiformis* *var. marocana* *var. n.* (p. 62), Morocco, P. Gayoral and A. Sasson; *C. apicala* (p. 143), *C. armata* (p. 144), *C. ampulla* (p. 145), *C. areolata* (p. 149), *C. abbreviata* (p. 150), *C. aestivata* (p. 151), *C. biarticulata* (p. 142), *C. bifrons* (p. 142), *C. bullata* (p. 145), *C. buriculiformis* (p. 147), *C. baccata* (p. 149), *C. conveza* (p. 144), *C. compacta* (p. 145), *C. cava* (p. 146), *C. cistula* (p. 148), *C. dangeardi* (p. 147), *C. dilatata* (p. 147), *C. dissimilis* (p. 151), *C. erecta* (p. 146), *C. fluviatilis* (p. 148), *C. foveolata* (p. 149), *C. fragilis* (p. 150), *C. granulosa* (p. 145), *C. involucreta* (p. 143), *C. inflata* (p. 144), *C. laevis* (p. 144), *C. libera* (p. 145), *C. lunata* (p. 145), *C. minor* (p. 148), *C. multiplex* (p. 151), *C. oblonga* (p. 144), *C. obliqua* (p. 147), *C. pyriformis* (p. 143), *C. printzii* (p. 146), *C. prolifera* (p. 147), *C. papillata* (p. 149), *C. plena* (p. 150), *C. protracta* (p. 150), *C. recta* (p. 147), *C. stigmata* (p. 145), *C. superiora* (p. 151), *C. tenuissimum* (p. 152), *spp. n. Manchuria*, *C. pascheriana* *comb. n.* (p. 143), B. W. Skvortzow.

*Chlorogonium acuminatum*, *C. minutum*, *C. tenuissimum*, *C. vernale*, *spp. n.* (all p. 152), Manchuria, B. W. Skvortzow.

*Gordieriella* *gen. n.* *C. nigra* *nom. n.* (p. 156), for *Carteria nigra* Skr., Manchuria B. W. Skvortzow.

*Haematococcus capensis* *sp. n.* (p. 10), *H. c. var. capensis* *var. n.* (p. 13), *H. c. var. torpedo* *var. n.* (p. 15), *H. c. var. piriiformis* *var. n.* (p. 15), *H. c. var. piriiformis forma caudata* *f. n.* (p. 16), *H. zimbabwensis* *sp. n.* (p. 21), all S. Africa, M. A. Pocock.

*Hyalogonium hyemale* *sp. n.* (p. 163), Manchuria, B. W. Skvortzow.

*Phacotus asiaticus* (p. 156), *P. hyalina* (p. 156), *P. oblongus* (p. 157), *spp. n. Manchuria*, B. W. Skvortzow.

*Polytoma acuta* (p. 162), *P. communis* (p. 163), *P. cucumis* (p. 163), *P. curvata* (p. 163), *P. longiciliata* (p. 162), *P. subcylindrica* (p. 162), *spp. n. Manchuria*, B. W. Skvortzow.

*Printziella* *gen. n.* (p. 140), *P. biflagellata* *sp. n.* (p. 141), Manchuria, B. W. Skvortzow.

*Pteromonas armata* (p. 158), *P. acuta* (p. 160), *P. cylindrica* (p. 157), *P. caudata* (p. 159), *P. foliosa* (p. 157), *P. incisa* (p. 160), *P. longicollis* (p. 158), *P. planktonica* (p. 158), *P. rhombica* (p. 157), *P. rotundata* (p. 158), *P. rotantes* (p. 158), *P. rugosa* (p. 161), *P. spinosa* (p. 159), *P. simplex* (p. 159), *P. subcordiformis* (p. 160), *P. trigustra* (p. 157), *P. undulata* (p. 158), *spp. n. Manchuria*, *P. incurva* *nom. n.* for *P. angulosa incurva* (p. 160), *P. obtusa* *nom. n.* for *P. angulosa obtusa* (p. 159), B. W. Skvortzow.

*Pyramidomonas abdida*, *P. abnato*, *P. hyalina*, *P. variabile*, *spp. n.* (p. 141), all Manchuria, B. W. Skvortzow.

*Sphaerolopsis asiatica* (p. 153), *S. elongata* (p. 152), *S. ovalis* (p. 152), *spp. n. Manchuria*, B. W. Skvortzow.

*Tetrahylepharis orbiculata* sp. n. (p. 162), Manchuria, B. W. Skvortzow.

*Thorakomonas asiatica*, *T. korschikovi*, *T. obovata*, *T. quadrata* (all p. 153), spp. n., Manchuria, B. W. Skvortzow.

### ZOOMASTIGINA

#### (f) Protomonadida.

*Amphimonas epiphyta* (p. 191), *A. globosa* (p. 192), spp. n., Manchuria, B. W. Skvortzow.

*Ancyromonas abrupta* (p. 188), *A. lata* (p. 189), *A. metabolica* (p. 189), *A. minuta* (p. 188), *A. nitzeichiae* (p. 189), *A. prima* (p. 189), *A. rotundata* (p. 188), *A. rugosa* (p. 189), *A. sociata* (p. 188), spp. n., Manchuria, B. W. Skvortzow.

*Bodocommunis* (p. 191), *B. elloptora* (p. 186), *B. frigida* (p. 191), *B. minuta* (p. 191), *B. ovalis* (p. 187), *B. phaseolus* (p. 191), *B. saprophytaria* (p. 186), spp. n., Manchuria, B. W. Skvortzow.

*Cercobodo bacillifaga* (p. 185), *C. barbata* (p. 185), *C. caudata* (p. 185), *C. constricta* (p. 185), *C. lemmermanni* (p. 186), *C. metabolica* (p. 186), *C. muscosa* (p. 185), *C. repens* (p. 186), spp. n., Manchuria, B. W. Skvortzow.

*Criethidia flexonema* sp. n. (p. 390), from insects, F. G. Wallace etc.

*Dinomonas ferox*, *D. planctonica*, *D. rotunda*, *D. simplex* spp. n. (all p. 190), Manchuria, B. W. Skvortzow.

*Foliamonas* gen. n. (p. 192), *F. triquetra* sp. n. (p. 192), Manchuria, B. W. Skvortzow.

*Herpetomonas ludwigi* comb. n. from crane fly larvae, K. Vickerman (2).

*Leishmania brasiliensis pifanoi* subsp. n. (p. 299) from Venezuela, R. Medina & J. Romero.

*Leptomonas collosoma* sp. n. (p. 391), from insects, F. G. Wallace etc.; *L. lata* (p. 188), *L. pisciformis* (p. 189), spp. n., Manchuria, B. W. Skvortzow.

*Lonkashkina* gen. n. (p. 187), *L. natans* (p. 187), *L. ovata* (p. 187), *L. vacuolaris* spp. n., (p. 188) Manchuria, B. W. Skvortzow.

*Monosiga rotunda* sp. n. (p. 190), Manchuria, B. W. Skvortzow.

*Oicomonas caudata* (p. 187), *O. rugosa* spp. n. (p. 187), Manchuria, B. W. Skvortzow.

*Retontomonas boae* sp. n. (p. 42), from anaconda, J. Kulda.

*Salpingoeca ulothrix* sp. n. (p. 190), Manchuria, B. W. Skvortzow.

*Serpentomonas* gen. n. (p. 192), *S. natans* sp. n. (p. 192), Manchuria, B. W. Skvortzow.

*Spiromonas* gen. n. (p. 190), *S. spirogyrae* sp. n. (p. 191), Manchuria, B. W. Skvortzow.

*Trypanosoma helogalei* sp. n. (p. 420), from Kenyan mongoose, M. S. Grewal; *T. biraberi* sp. n. (p. 80) from a rodent, M. E. Jorg.

#### (g) Trichomonadida.

*Hypotrichomonas acosta* gen. n. (p. 397), J. J. Lee.

*Trichomonas buttrei* sp. n. (p. 165), from pigs, C. P. Hibler, etc.; *T. muris* var. n. *meriones* (p. 84), from jird, *Meriones erythrorus*, Kazakhstan, S. M. Pak (1).

*Tritrichomonas rotunda* sp. n. (p. 163), from pigs, C. P. Hibler etc.

#### (h) Hypermastigida.

[No record.]

#### (i) Diplomonadida.

*Hezamisus abrupta* sp. n. (p. 193), *H. cornuta* sp. n. (p. 193), Manchuria, B. W. Skvortzow.

*Trepomonas volcanis* sp. n. (p. 193), Manchuria, B. W. Skvortzow.

#### (j) Polymonadida.

*Kuzminia* gen. n. (p. 192), *K. incerta* (p. 193), sp. n., Manchuria, B. W. Skvortzow.

### 3.—SPOROZOA COCCIDIOMORPHA

#### (a) Gregarinida.

*Colepiemastophila burti* sp. n. (p. 526), *C. buckleyi* sp. n. (p. 528), from Ceylonese silverfish, H. Cruz.

*Gregarina etigmae* sp. n. (p. 1137), from G. A. Stein (1).

*Lepidomastophila orientalis* sp. n. (p. 529), from Ceylonese silverfish, H. Cruz.

*Mecistophora lageri* gen. n., sp. n. (p. 555), from Indian centipede, P. N. Ganapati & C. C. Narasimhamurti (1).

*Pileocephalus glyptothelii* sp. n. (p. 1138) from G. A. Stein (1).

*Stenophora thyroglossi* from Indian millepede, P. N. Ganapati & C. C. Narasimhamurti (3).

#### (b) Coccidiida.

*Adelea hyalospora* sp. n. (p. 61), from Indian centipede, C. C. Narasimhamurti.

*Caryospora psammophi* sp. n. (p. 314), *C. hermae* sp. n. (p. 317), *C. weyeri* sp. n. (p. 317), *C. zuckermanae* sp. n. (p. 317), from snakes, R. S. Bray, (2); *C. microti* sp. n. (p. 63) from meadow mouse, L. H. Saxe, N. D. Levine & V. Ivens.

*Dactylosoma lethrinorum* sp. n. (p. 249) from moaning fish, D. C. Saunders.

*Eimeria delicata* sp. n. (p. 207), *E. roundabushi* sp. n. (p. 208) from deer mice, N. D. Levine & V. Ivens. *E. egypti* sp. n. (p. 322), *E. sylvatica* sp. n. (p. 324), *E. cricetomyi* sp. n. (p. 327), from rodents, H. Prasad (5); *E. megaresidua* sp. n. (p. 219), *E. longaspora* sp. n. (p. 219), from newts, J. H. Barrow Jr. & J. B. Hoy; *E. myocastori* sp. n. (p. 209), *E. nutriae* sp. n. (p. 208), from coypu, H. Prasad, (4); *E. neosciuri* sp. n. (p. 136), from squirrel, H. Prasad (3); *E. rufusi* sp. n. (p. 385), from kangaroo, H. Prasad (1); *E. terrestris* sp. n. (p. 60), from *Arvicola terrestris*, M. A. Musaeov & A. M. Veisov; *E. tatalischaensis* sp. n. (p. 60), from *Arvicola terrestris*, M. A. Musaeov & A. M. Veisov; *E. walleri*

sp. n. (p. 395), *E. gorgonis* sp. n. (p. 396), *E. pellerdei* sp. n. (p. 397), from captive mammals in the London Zoo, H. Prasad (2); *E. wenrichi* sp. n. (p. 61), from meadow mouse, L. H. Saxe, N. D. Levine & V. Ivens.

*Haemogregarina aurorae* sp. n. (p. 202), from frogs, D. L. Lehmann (1); *H. rubrimarensis* sp. n. (p. 244), from Red Sea fish, D. C. Saunders.

*Isopora* oocysts observed in cattle faeces actually a sparrow parasite and not a separate species, N. D. Levine & R. N. Mohan; *Isopora batabatica* sp. n. (p. 59), from *Arvicola terrestris*, M. A. Musaev & A. M. Velsov; *I. egypti* sp. n. (p. 324), from rodents, H. Prasad (5); *I. medowelli* sp. n. (p. 62) from meadow mouse, L. H. Saxe, N. D. Levine & V. Ivens.

*Lankesterella serini* a synonym of *L. garnhami*, R. Lainson.

*Tyzzeria peromyaci* sp. n. (p. 210), from deer mice, N. D. Levine & V. Ivens.

#### (m) Haemosporidia.

*Babesia leporina* sp. n. (p. 16), from hare, B. Baldelli.

*Babesiosoma rubrimarensis* sp. n. (p. 249), from marine fish, D. C. Saunders.

*Eucoccidium ophryotrocha* sp. n. (p. 48), from annelid, K. G. Grall (1).

*Haemamoeba acuminata* sp. n. (p. 413), from chameleons, G. Pringle.

*Haemoproteus canachites* sp. n. (p. 456), from Canadian grouse, A. M. Fallis & G. F. Bennett.

*Cytauzoon tauotragi* sp. n. (p. 331), from eland, H. Martin & D. W. Brocklesby.

*Piroplasma meles* sp. n. (p. 42), from badger, Kazakhstan, A. M. Krivkova.

*Plasmodium anomaluri* sp. n. (p. 411), from flying squirrel, G. Pringle; *P. cynomolgi bastianellii* subsp. n. (p. 274), from Malayan monkey, P. C. Garnham (2); *P. matutinum* considered to be a species not sub-species, A. Corradetti, I. Neri, & M. Scanga; *P. vastator* sp. n. (p. 246), from Malayan lizard, M. Laird (3).

*Polychromophilus congolensis* sp. n. (p. 394), from Congolese bats, H. E. Krampitz, & F. Anciaux de Paroaux.

### SARCOSPORIDIA

#### (d) Sarcosporidia.

[No record.]

### CNIDOSPORIDIA

#### (e) Myxosporidia.

Identification of *Chloromyxum* spp., A. K. Akhmerov & I. P. Martganova.

*Certomyxa tenuispora* sp. n. (p. 305), from black scabbard fish, Z. Kabata (2).

*Hofereilus schulmani* sp. n. (p. 113), from Russian fish, M. N. Golikova (2).

#### (f) Microsporidia.

*Nosema cerasivoranae* sp. n. (p. 643), from Canadian caterpillar, H. M. Thomson; *N. lepiduri* sp. n. (p. 36), from freshwater shrimp, J. Vavra (3); *N. operophterae* sp. n. (p. 756), from winter moth, E. V. Canning; *N. tritoni* sp. n. (p. 232), from Czech newt, J. Weiser.

*Plistophora operophterae* sp. n. (p. 756), from winter moth, E. U. Canning.

*Stempellia weiseri* sp. n. (p. 50) from Czech spider, V. Šilhavý.

#### (g) Actinomyxidia.

[No record.]

### HAPLOSPORIDIA

#### (h) Haplosporidida.

*Nephridiophaga xenoboli* sp. n. (p. 582), from Indian millipede, P. N. Ganapati & C. C. Narasimhamurti (2).

### SPOROZOA INCERTAE SEDIS

Classification and nomenclature of *Besnoitia besnoiti*, J. W. Pols.

*Pirhemocytus eremiasi* sp. n. (p. 663), from lizards, G. Blane, L. Ascione.

### 4.—CILIOPHORA

#### CILIATA

##### GENERAL

Names of genera of Ciliata, J. O. Corliss (3).

Numbers of species of Ciliophora, J. O. Corliss (4).

#### HOLOTRICHA

#### (a) Gymnostomatida.

*Bryophyllum loxophylliforme* Kahl forma, *balatonica* f. n. (p. 227), Hungary, J. Gellert & E. Tamás (1).

*Centrophorella minuta* sp. n. ? (p. 184), France, J. Dragesco.

*Chaenea psammophila* sp. n. (p. 102), France, J. Dragesco.

*Chenea* (?) (= *Trachilocerca*) *tesselata*, *C. nigricans*, *C. trepida*, *C. conifera* comb. n. (all. p. 140). J. Dragesco.

*Chilodonella psammopinta* sp. n. (p. 253), France, J. Dragesco.

*Ciliofaurea* nom. n. (= *Faurea* preoccupied). *C. longissima* sp. n. (p. 225), France, F. Dragesco.

*Cortisia* nom. n. (= *Cortisia*, spelling) (p. 246), J. Dragesco.

*Cryptopharynx setigerum* var. *furcatum* var. n. (p. 255), *C. multinucleatum* sp. n. (p. 256), France, J. Dragesco.

*Diceratula* n. nom. (= *Diceras* Eberhard, preoccupied), J. O. Corliss (3).

*Dileptus estuarius* sp. n. (p. 186), *D. thononensis* sp. n. (p. 188), *D. aculeatus* sp. n. (p. 188), France, J. Dragesco.

*Enchelyodon vacuolatus* sp. n. (p. 104), France, J. Dragesco; E. (= *Trachelocerca*) *laevis* comb. n. (p. 149), J. Dragesco; *E. granosus* sp. n. (p. 85), Rumania, J. Lepsi (4).

*Geleia acuta* sp. n. (p. 238), *G. obliqua* sp. n. (p. 238), *G. heterotricha* (p. 239), *G. luci* sp. n. (p. 241), *G. hyalina*, sp. n. (p. 241), *G. vacuolata* sp. n. (p. 243), France, J. Dragesco; *G. floridensis* sp. n. (p. 258), warm spring, Florida, J. B. Lackey (1).

*Helicoprordodon multinucleatum* sp. n. (p. 87), France, J. Dragesco.

*Hemiphrys lozophylliforme* sp. n. (p. 157), France, J. Dragesco.

*Hydrophrya vorax* sp. n. (p. 61), France, J. Dragesco; H. (= *Trachelocerca*) *coronata*, *H. oblonga*, *H. mazima*, all comb. n. (p. 140), J. Dragesco; *H. sphagueti* sp. n. (p. 84), Rumania, J. Lepsi (4).

*Kopperia* n. nom. (= *Malacosoma* Kopperi, preoccupied), J. O. Corliss (3).

*Lacrymaria caudata* var. *lemanii* var. n. (p. 99), France, J. Dragesco.

*Lionotus dusarti* sp. n. (p. 157), France, J. Dragesco.

*Lozodes penardi* sp. n. (p. 191), France, J. Dragesco.

*Lozophyllum helus* var. *minimus* var. n. (p. 160), *L. setigerum* var. *fibrillatus* var. n. (p. 165), *L. kahli* sp. n. (p. 169), France, J. Dragesco.

*Microthorax elongatus* sp. n. (p. 86), Rumania, J. Lepsi (4).

*Paraspathidium fuscus* (= *Trachelocerca fuscus*) comb. n. (p. 140), J. Dragesco.

*Platyphrya fissistoma* sp. n. (p. 152), Rumania, J. Lepsi (3).

*Polymorphella* n. nom. (= *Polymorphella* Dogiel, preoccupied), J. O. Corliss (3).

*Prorodon vacuolatus* sp. n. (p. 70), *P. deflandrei* sp. n. (p. 75), *P. vermiforme* sp. n. (p. 76), *P. teres* var. *lemoni* var. n. (p. 77), *P. nucleolatus* var. *magnus* (p. 78), *P. diaphanus* sp. n. (p. 78), all France, J. Dragesco.

*Pseudoprordodon protrichocystus* sp. n. (p. 65), France, J. Dragesco.

*Remanella levii* sp. n. (p. 204), France, J. Dragesco.

*Rhagdosoma roscoffensis* sp. n. (p. 82), France, J. Dragesco.

*Schewiatoffia* n. nom. (= *Maupasia* Schewiakoff, preoccupied), J. O. Corliss (3).

*Sciurula* n. nom. (= *Sciurella* Kopperi, preoccupied), J. O. Corliss (3).

*Spathidium mirum* sp. n. (p. 86), Rumania, J. Lepsi (4).

*Trachelocerca multinucleata* (p. 115), *T. schulzei* (p. 118), *T. binucleata* (p. 120), *T. minuta* (p. 120), spp. n. France, J. Dragesco, *T. dogieli* sp. n. (p. 346), Russia, J. B. Raikov (1).

*Trachelonema* gen. n. (p. 135), with *T. longicollis* sp. n. (p. 135) as genotype, *T. minima* (p. 135), *T. grassei* (p. 136) sp. n., France, J. Dragesco.

*Tracheloraphis* gen. n. (p. 120), with *T. phoenicopterus* n. comb. (= *Trachelocerca phoenicopterus*) (p. 121), as genotype, *Tracheloraphis* (= *Trachelocerca*) *aragoi* (p. 122), *T. incaudatus* (p. 125), *T. fasciolatus* (p. 127), *T. griseus* (p. 133), comb. n. *T. remanei* (p. 124), *T. draehi* (p. 125), *T. teissieri* (p. 127), *T. prenanis* (p. 130), *T. hyalinum* (p. 130), *T. swedmarki* (p. 31), *T. gracilis* (p. 133), *T. enigmatis* (p. 133), all spp. n. from France, J. Dragesco.

*Trichopodiella* n. nom. (= *Trichopus* Claparède & Lachmann, preoccupied), J. O. Corliss (3).

*Urotricha armata* sp. n. (p. 61), France, J. Dragesco

#### (b) Trichostomatida.

*Bursellopsis* n. nom. (= *Bursella* Schmidt, preoccupied), J. O. Corliss (3).

*Drepanomonas borzai* sp. n. (p. 153), Rumania, J. Lepsi (3).

*Grandoria* n. nom. (= *Lagenella* R. & L. Grandori, preoccupied), J. O. Corliss (3).

*Opisthostomatella* n. nom. (= *Opisthostomum*, Ghosh, preoccupied), J. O. Corliss (3).

#### (c) Ohonotrichida

[No record]

#### (d) Suctorida.

*Actinocyathula* n. nom. (= *Actino-cyathus* Kent, preoccupied), J. O. Corliss (3).

*Cyclophrya katharinae* n. sp. (?Hungary), J. Kormos (3).

*Discosomatella* n. nom. (= *Discosoma* Swarczewsky, preoccupied), J. O. Corliss (3).

*Pottsiodes* n. nom. (= *Pottisia* Chatton & Swoff, preoccupied), J. O. Corliss (3).

#### (e) Apostomatida.

*Jeppsia* n. nom. (= *Chattonella* Jepps, preoccupied), J. O. Corliss (3).

*Terebrospira lenticularis* nom. n. (= *Chattonia lenticularis*) (p. 333), *Palaemon varians*, P. Debaisieux.

#### (f) Astomatida.

Astomatida from oligochaetes of L. Oehrid, P. de Puytorac (3).

*Corlissella* gen. n. *criodrii* n. comb. (p. 285), (= *Anoplophrya criodrii* Heidenreich), in gut of *Oriodrilus lacuum* and *C. ochridensis* (L. Oehrid, Jugoslavia), P. de Puytorac (3).

*Intoshellina ochridana* sp. n. (p. 284), in gut of *Ilyodrilus ochridanus* (L. Oehrid, Yugoslavia), P. de Puytorac (3).

*Manpasella vacuolata* sp. n. (p. 204), gut of *Pheretima rodericensis* (Prague), J. Lom (1).

*Mesnilella bohémica* sp. n. (p. 207), gut of *Nais* sp. J. Lom (1).

*Radiophrya enchytraei* comb. n. (= *Juztaradiophrya enchytraei*) (p. 200), J. Lom (1).

(g) **Hymenostomatida.**

*Bisonula* n. nom. (= *Bizone* Lepsi, preoccupied), J. O. Corliss (3).

*Caracatharina* (= *Catharina*), *Caracatharina florea* (J. Kormos), nov. comb. (p. 22), J. Kormos (2).

*Cardiostomatilla* n. nom. (= *Cardiostoma* Kahl, preoccupied), J. O. Corliss (3).

*Cryptochilum* correct genus for *Entorhipidium fukuui*, J. Berger (2).

*Frontonia macrostoma* sp. n. (p. 262), *F. vacuolata* sp. n. (p. 262), *F. caneti* sp. n. (p. 264), *F. aberrans* sp. n. (p. 264), *F. bullingtoni* sp. n. (p. 266), France, J. Dragesco.

*Lembadion bullinum* var. *arenicola* var. n. (p. 267), France, J. Dragesco.

*Pleuronema arenicola* (p. 273), *P. oculata* (p. 276), *P. simplex* (p. 276), *P. grassei* (p. 276), spp. n., France, J. Dragesco.

*Saprophilus simonis* sp. n. (p. 153), Rumania, J. Lepsi (3).

*Sathrophilus* n. nom. (= *Saprophilus* Stokes, preoccupied), J. O. Corliss (3).

*Tetrahymena chironomi* sp. n. (p. 115), from midge larvae, J. O. Corliss (1); Characters of *T. paravorax* in vitro, H. E. Buhse; Sublines of *T. vorax* Strain V<sup>1</sup>, N. E. Williams (2); Designation of HS cultures of micronucleate *T. pyriformis* as HSM, C. Wells. *Turanella* n. nom. (= *Turania* Brodsky, preoccupied) J. O. Corliss (3).

(h) **Thigmotrichida.**

Characters of family *Hysteroecinetidae*, E. N. Kozloff.

*Thigmocomidae* fam. n. (p. 172), with *Thigmocoma* gen. n. (p. 169) as type, type sp. *T. acuminata* sp. n. (p. 167) from kidney of *Schistophallus orientalis* (Pulmonata), Poland, S. L. Kazubski (2).

*Plagiopyiella* correct genus for *Concholphtirius striatus*, J. Berger (2).

*Ptychostomum campelomae* sp. n. (p. 44), in gut of prosobranch, *Campeloma geniculum* (N. Carolina, U.S.A.), E. N. Kozloff.

(i) **Peritrichida.**

Peritrichida from Hungarian swamps (includes German descriptions of new species previously announced in Hungarian), J. Stiller (2).

*Epistylis caldwelli* sp. n. usually on crustaceans and insects, Singapore, M. Laird (4).

Synonymy of *Intranstylum crassicaulis* J. Buchar (2).

*Pyzidiella* n. nom. (= *Pyxidium* Kent, preoccupied), J. O. Corliss (3).

*Rhabdostyla parva* sp. n. (p. 155), Rumania, J. Lepsi (3).

*Semitrichodina* gen. n. (p. 111), type sp. = *S. sphaeronuclea* nom. n. (p. 109), (= *Trichodinella sphaeronuclea* Lom), in *Schistophallus orientalis* (Pulmonata), Poland, S. L. Kazubski (1).

*Trichodina intermedia* n. sp., *T. janovici* n. sp., both from Czechoslovakian minnows, *Phoxinus phoxinus*, J. Lom (3); *T. nigra* n. sp. *T. domerguei* f. magna f. n., *T. d. f. esocis* f. n., *T. nigra* f. gobii f. n., *T. n. f. cobitis* f. n., *T. n. f. nemachili* f. n., *T. janovici* n. sp., *T. intermedia* n. sp., all from Czechoslovakian fish, J. Lom, (3 and 4).

*Vorticella coeni* sp. n. (p. 154), *V. pileolata* sp. n. (p. 154), Rumania, J. Lepsi (3).

**SPIROTRICHA**

(i) **Heterotrichida.**

List of Antarctic folliculinids, R. A. Ringuelet.

*Blepharisma multinucleata* sp. n. (p. 288), France, J. Dragesco; *B. biancae* sp. n. (p. 153), Rumania, J. Lepsi (3).

*Condylostoma tenuis* sp. n. (p. 43), France, E. Fauré-Fremiet (4); *C. remanei* var. *ozyoura* var. n. (p. 295), *C. minima* (= *C. minuta* preoccupied) nom. n. (p. 296), *C. kahli* sp. n. (p. 299), France, J. Dragesco.

*Dellochus* n. nom. (= *Lochus* Delphy, preoccupied), J. O. Corliss (3).

*Gruberia binucleata* sp. n. (p. 296), France, J. Dragesco.

*Metopus lemani* sp. n. (p. 282), France, J. Dragesco.

*Parafolliculina patagonica* comb. n. (p. 217), R. A. Ringuelet.

*Pseudoblepharisma lacustris* sp. n. (p. 89), Rumania, J. Lepsi (4).

(k) **Oligotrichida.**

*Strombidium arenicola* (p. 302), *S. macronucleatum* (p. 303), *S. faurei* (p. 304), spp. n., *S. sauerbragae* var. *fournetii* var. n. (p. 305), France, J. Dragesco.

(l) **Tintinnida.**

Tintinnida of Mediterranean Sea, E. Balech.

*Ascampbelliella* n. nom. (= *Curateriella* Kofoid and Campbell, preoccupied), J. O. Corliss (3).

*Buschiella* n. nom. (= *Imperfecta* Busch, preoccupied), J. O. Corliss (3).

*Codonella olla* var. *n. minor* (p. 9), Recent, Israel, B. Komarovsky.

*Codonellopsis eylathensis* sp. n. (p. 11), Recent, Israel, B. Komarovsky; †*C. frigida* sp. n. (p. 78), Recent, Antarctic, E. Balech.



*Coziella meunieri* var. n. minor (p. 12), Recent, Israel, B. Komarovskiy.

†*Epilopyclis mira* sp. n. (p. 80), Recent, Antarctic, E. Balech.

*Eutinnus apertus* var. n. curta (p. 9), Recent, Israel, B. Komarovskiy.

*Niemarshallia* n. nom. (= *Marshallia* Nie & Ch'eng, preoccupied), J. O. Corliss (3).

*Tintinopsis tubulosa* and *T. brandt*, taxonomy, E. Halme & T. Lukkarinen.

(m) Entodiniomorphida.

*Diplodinium moucheti* sp. n. (p. 327), from African antelope, C. Noirot-Timotheé (2).

*Thoracodinium* gen. n. (p. 272), *T. vorax* sp. n. (p. 274), from caecum of *Elephas indicus*, B. Lattour.

(n) Odontostomatida.

*Discomorphella* n. nom. (= *Discomorpha* Levander, preoccupied), J. O. Corliss (3).

*Epalzella* n. nom. (= *Epalxis* Roux, preoccupied), J. O. Corliss (3).

*Polydiniella* n. nom. (= *Polydinium* Kofoid, preoccupied), J. O. Corliss (3).

(o) Hypotrichida.

*Aspidiaca major faurei* var. n. (p. 334), *A. hyalina* sp. n. (p. 335), *A. fjeldi* sp. n. (p. 336), France, J. Dragesco.

*Balladyna euplotes* sp. n. (p. 314), France, J. Dragesco.

*Diacocephalus ehrenbergi* sp. n. (p. 324), France, J. Dragesco.

*Euplotes aberens* sp. n. (p. 320), *E. patella* var. *lemari* var. n. (p. 321), *E. thononensis* sp. n. (p. 322), France, J. Dragesco; Taxonomy of *Euplotes*, M. Tuffrau.

*Euplotidium itoi* sp. n. (p. 184), Japan, S. Ito.

*Gastrocirrhus trichocystus* sp. n. (p. 185), Japan, S. Ito.

*Grumberella* n. nom. (= *Stylocoma* Gruber, preoccupied), J. O. Corliss (3).

*Hemicyclostyla lacustris* sp. n. (p. 227), Hungary, J. Gellért & G. Tamás (1).

*Histriculus* n. nom. (= *Histrio* Sterki, preoccupied), J. O. Corliss (3).

*Histrio macrostoma* sp. n. (p. 229), Hungary, J. Gellért & G. Tamás (1).

*Kahliella* n. nom. (= *Kahlia* Horváth, preoccupied), J. O. Corliss (3).

*Keronopsis litoralis* sp. n. (p. 228), Hungary, J. Gellért & G. Tamás (1).

*Lacazea* gen. n. (p. 320) with *L. ovalis* sp. n. (p. 320), as genotype, France, J. Dragesco.

*Onychodromopsis tihanyensis* sp. n. (p. 230), Hungary, J. Gellért & G. Tamás (1).

*Ozytricha quercineti* sp. n. (p. 154), Rumania, J. Leppi (3).

*Spirofilopsis* n. nom. (= *Spirofilum* v. Gelei, preoccupied), J. O. Corliss (3).

*Steinia fenestrata* sp. n. (p. 90), Rumania, J. Leppi (4).

*Tachysoma balatonica* sp. n. (p. 229), Hungary, J. Gellért & G. Tamás (1).

*Euronychia festinans* sp. n. (p. 91), Rumania, J. Leppi (4).

*Urospina* n. nom. (= *Urospina* v. Gelei, preoccupied), J. O. Corliss (3).

*Urostyla algivora* sp. n. (p. 228), Hungary, J. Gellért & G. Tamás (1).

PROTISTA INCERTAE SEDIS

†*Baltisphaeridium* gen. n. (includes *H. (pars) Hystrichosphaeridium longispinosum*, genotype) (p. 399), *B. neptuni* sp. n. (p. 399), Cretaceous, Germany, A. Eisenack (2); †*B. longispinosum* f. n. *filifera* (p. 195), *B. longispinosum* f. n. *latiradiata* (p. 195), *B. longispinosum* f. n. *robusta* (p. 195), *B. suecicum*, *macrophylum* spp. n. (p. 195), *B. visbyensis* sp. n. (p. 200), *B. corralinum* sp. n. (p. 201), Silurian, Germany, A. Eisenack (3); †*B. trifurcatum* f. n. *typica* (p. 202), *B. trifurcatum* f. n. *breviradiata* (p. 202), *B. trifurcatum* subsp. n. *nudum* (p. 203), *B. trifurcatum* subsp. n. *pascifurcatum* (p. 203), *B. micranthum* sp. n. (p. 203), *B. lophophorum* sp. n. (p. 204), Silurian, Germany, A. Eisenack (3); †*B. brevispinosum* var. n. *wenlockensis* (p. 59), *B. brevispinosum* var. n. *granuliferum* (p. 59), *B. robustispinosum* sp. n. (p. 61), Silurian, England, C. Downie; †*B. varispinosum* sp. n. (p. 338), Jurassic, Yorkshire, W. A. S. Sarjeant.

†*Cannosphaeropsis aemula* subsp. n. *integra* (p. 47), *C. filamentosa* sp. n. (p. 47), *C. mirabilis* sp. n. (p. 48), Jurassic, Australia, I. C. Cookson & A. Eisenack; †*C. utinensis* subsp. n. *filifera* (p. 46), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Ceratocystidiopsis ludbrookii* sp. n. (p. 52), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Chlamydothorax* gen. n. *neyi* sp. n. (p. 56), (holotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Coronifera* gen. n. *oceanica* sp. n. (p. 45) (genotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Cyclodictyon* gen. n. *paradoxos* sp. n. (p. 58) (genotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Cymatiosphaera actoplana*, *wenlockia* spp. n. (p. 63), Silurian, England, C. Downie; †*C. pterota*, *stigmata* spp. n. (p. 50), Cretaceous, Australia, I. C. Cookson & A. Eisenack. †*C. parva* sp. n. (p. 342), Jurassic, Yorkshire, W. A. S. Sarjeant.

†*Diozya* gen. n. *armata* sp. n. (p. 59) (genotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Estiastra* gen. n. *magna* sp. n. (p. 201), Silurian, Germany, A. Eisenack (3).

†*Fromea* gen. n. (p. 55) *amphora* sp. n. (p. 56), (holotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Hystrichokolpoma poculum* sp. n. (p. 312), Tertiary, Germany, D. Maier (2).

†*Hystrichosphaeridium* emendation thereof (p. 399), cited genotype *H. tubiferum*, *H. coinodes* sp. n. (p. 402), *H. hirundo* sp. n. (p. 404), Cretaceous, Germany, A. Eisenack (2); †*H. siphoniphorum* sp. n. (p. 44), *H. parvispinum* sp. n. (p. 45), Cretaceous, Australia, I. C. Cookson & A. Eisenack; †*H. anthophorum* sp. n. (p. 43), *H. dictyophorum* sp. n. (p. 44), Jurassic, Australia, I. C. Cookson & A. Eisenack; †*H. lobospinosum* sp. n. (p. 314), *H. longofilium*, *rehdense* spp. n. (p. 317), *H. plicatum*, *echinoides* spp. n. (p. 318), *H. asperum*, *osturnium* spp. n. (p. 319), *H. stellatum* sp. n. (p. 320), *H. leptodermum* sp. n. (p. 321), *H. polyplasiun* sp. n. (p. 322), Tertiary, Germany, G. Maier (3).

†*Korojonia* gen. n. *dubiosa* sp. n. (p. 54) (genotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Leiofusa oblonga* sp. n. (p. 205), Silurian, Germany, A. Eisenack (3); †*L. filifera*, *tumida* spp. n. (p. 65), Silurian, England, C. Downie; †*L. jurassica* sp. n. (p. 51), Jurassic, Australia, I. C. Cookson & A. Eisenack.

†*Leiosphaeridia* gen. n. (p. 2), *baltica* sp. n. (p. 8), Palaeozoic, Germany, A. Eisenack (1); †*L. aptiana* sp. n. (p. 409), Cretaceous, Germany, A. Eisenack (2). †*L. wenlockia* sp. n. (p. 65), Silurian, England, C. Downie.

†*Membranilurnax leptoderma* sp. n. (p. 50), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Michrystidium stellatum* var. n. *inflatura* (p. 61), *M. estonensis* sp. n. (p. 62), Silurian, England, C. Downie.

†*Nannoconus dawvillieri*, *multicadus* spp. n. (p. 2373), *N. elongatus* var. n. *cylindricus*, *macrolithus* (p. 2373), Cretaceous, France, G. Deflandre & M. Deflandre-Rigaud (2).

†*Omatia pisciformis* sp. n. (p. 61), Jurassic, Australia, I. C. Cookson & A. Eisenack; †*O. gen. n. montgomeryi* sp. n. (p. 60) (genotype), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Pareodinia aphelia* sp. n. (p. 60), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Pseudoceratium turneri* sp. n. (p. 55), Cretaceous, Australia, I. C. Cookson & A. Eisenack.

†*Pterospermopsis aureolata*, *eurypteris* spp. n. (p. 49), Cretaceous, Australia, I. C. Cookson & A. Eisenack; †*P. helics* sp. n. (p. 342), Jurassic, Yorkshire, W. A. S. Sarjeant.

†*Pulvinosphaeridium oligoprojectum* sp. n. (p. 64), Silurian, England, C. Downie.

†*Pyxidiella* gen. n. (p. 51), *pandora* sp. n. (p. 52) (genotype), Jurassic, Australia, I. C. Cookson & A. Eisenack.

*Sphaerochitina collinsoni* sp. n. (p. 104), Devonian, U.S.A., D. L. Dunn.

†*Stomiosphaera colomi* sp. n. (p. 162), *S. moreti* sp. n. (p. 163), Mesozoic, North Africa, M. Durand Delga (3).

†*Tasmanites martinsoni* sp. n. (p. 6), *T. tardus* sp. n. (p. 7), Palaeozoic, Germany, A. Eisenack (1).

†*Tenua* gen. n. *hystrix* sp. n. (p. 410) (genotype), *T. hystrixella* sp. n. (p. 411), Cretaceous, Germany, A. Eisenack (2).

†*Veryhachium tetradron* var. n. *wenlockium* (p. 62), *V. rhomboidium* sp. n. (p. 62), Silurian, England, C. Downie.

†*Wanaea* gen. n. (p. 57) (genotype *Epicephalopyxis spectabilis* Deflandre and Cookson 1955), *W. digitata*, *clathrata* spp. n. (p. 58), Jurassic, Australia, I. C. Cookson & A. Eisenack.



